ATARI 130XE GAMES BOOK

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CONTENTS

ARRANGEMENT OF PROGRAMS

All the programs have been classified, explained and set out in an easy to read and enter format, with further programming suggestions and enhancements. We hope you enjoy this book and games within and continue to get the 'best' for and from your ATARI 13ØXE.

In the programs throughout this book, spaces have been used to aid readability. These have been placed between reserve words like PRINT, FOR, GOTO, GOSUB and between the characters in strings. It is not necessary to put them between reserve words most of the time however occasionally the machine will demand it. So if you type in a line omitting the spaces and the machine rejects it with a error, retype it with the spaces. The only time you should type a space inside of a string is when you see the * symbol. This avoids confusion.

The ATARI has a number of special graphics characters. These are obtained by pressing combinations of keys. The bulk of these characters are obtained hy pressing the Control key and one of the alphabetic character keys. Inverse characters (reverse images of characters) are obtained by pressing the inverse key on the extreme bottom right hand side of the keyboard. Normal characters are restored by pressing this key once more.

Frequently occurring (and easily overlooked) typing errors with the ATARI 130XE

1. Do not confuse the letter O with the digit Ø (zero).

2. Do not confuse the capital letter I with the numeric digit 1 (one).

3. A comma and a full stop (period) are not interchangable.

4. When a colon is required do not type a semi-colon (;). These two characters are not interchangeable.

5. A double quote (") is not interchangeable with an apostrophe (').

6. Inside of character strings, spaces are mandatory if indicated by the * symbol.

7. It is important to get the number of brackets inside a BASIC formulae correct otherwise the line will be rejected. The bracket symbols are () and not [_.

8. The following characters are obtained by pressing the shift key and the numeric keys; ! " # $ % & ' @ ( )

Overall advice

If you type in a program line, press RETURN and the computer rejects it with an error message, then carefully compare the line with what's in the book. The line has been rejected because it has not been written according to the rules of BASIC. Retype the line correctly as per the book.

All BASIC program statements must be in upper case. Any reserve word in lower case will rejected as an error. Also reserve words may not be in the inverse mode.

Once you have typed in a program save a copy of it to tape or disk. Under no circumstances type in a program and RUN it without doing this first. Most of the programs in this book contain POKEs or machine language. If you make a mistake typing in a program and then RUN it, these are liable to erase your program or lock up the machine. If the error is disasterous enough, the only way to restart the machihe is to switch it off and on, losing your program !!! If by some misfortune you should do this and the machine locks then press RESET. If control doesn't go back to BASIC then you have lost your program otherwise you may still have an oppotunity to save it to tape or disk.

Save a program to tape with

```
SAVE "C:FILENAME"
```

or to disk with

```
SAVE "D:FILENAME"
```

After you have typed in a program and saved it to either tape or disk, it's safe to RUN it. Unfortunately just because the computer has accepted a program line doesn't mean that it's correct. You are likely to be presented with a number of error messages the first time you try to RUN a program. To some extent this can be prevented by using CHEXSUM in the next section but even that won't solve all problems. Here is a list of the most common error messages and their probable causes.

```
ERROR-     17 AT LINE nnnn
```

This generally means that you have typed in a line, caused a syntax error and didn't notice it. When a syntax error occurs, the word ERROR- is entered into the start of the bad line. So when the ATARI tries to execute the line it finds garbage. The error is repaired by retyping in the line correctly.

ERROR- 12 AT LINE nnnn
The computer has been told to GOTO, COSUB, ON COSUB or ON COTO to a line and the line didn't exist. Check that the line which has the above statements in it has the right linenumber. Then check that the line it was told to goto actually exists.

ERROR- 6 AT LINE nnnn
The computer tried to read some information from a DATA statement with a READ statement and there wasn't enough data present. The most obvious cause of this error is a mistake in the DATA statements. Carefully go through the DATA statements making sure that all numbers are right. Check to see that no full stops have been exchanged for commas and vice versa.

ERROR- 8 AT LINE nnnn
The computer tried to read information from DATA statements, was expecting numeric information and got character information instead. The solution to this problem is the same as above. Check through your data statements and make sure that all the information is correct. Also make sure that the READ statement where the error occured is correct.

ERROR- 3 AT LINE nnnn
The computer used a number which was out of range. For example a POKE statement tried to use a number which was not in the range Ø-255. If a POKE statement contains a variable then print the contents of the variable and find out how it got to that value. Cenerally happens when a READ statement fetches an incorrect DATA statement and the computer tries to POKE the bad data. Check the DATA statement.

ERROR- 9 AT LINE nnnn
A reference was made to an array or a string and an error occured. There are various reasons why this error has occured. They are:

* A reference was made to an array which didn't exist. There are two reasons for this; the variable in the line where the error occurred was incorrect, or the variable named in the DIM statement was incorrect. Check these two sources.

* An array reference was incorrect. It was either greater than 32767 or a negative number. Check that the array reference was in this range or was not greater than the dimension size.

* A string variable must be declared with a DIM statement at the start of the program. If you get an array error for a string then either the string variable where the error occurred is wrong or the varaible in the DIM statement is wrong. When you have typed in a program and you can't get it running properly, even after numerous debugging attempts, then put the job at rest for a day or so. It often happens that you will find the bug at once after resuming the job.

CHEXSUM

The unique CHEXSUM program validation

WHY

When a book of programs such as this book is keyed in, everybody invariably makes reading and typing mistakes and then spends ages trying to sort out where and what is causing the error (errors).

Even experienced programmers often cannot identify an error just by listing the relevant line and need to do the tedious job of going back to the book, especially with DATA statements.

Realizing that this is a major cause of frustration in keying the program, we decided to do something about it. There is a short routine in this book which you should key in and save BEFORE you key in any of the games programs.

Using this routine you will be able to find out if you made any keying errors at all and in which lines, before you even RUN the program. In effect this means that with this book you need not waste time looking for keying errors, you simply run the CHEXSUM routine and look at the display to identify lines containing errors. It's that easy.

The principle behind the routine is a unique check sum which is calculated on each line of the program you have keyed into the computer. Compare this chexsum value with the value for that line in the list at the end of the program listing; if they are the same the line is correct, if not there is an error in that line.

WHEN

The simplest method is to enter the CHEXSUM program in now and save a copy of it to tape or disk. To save it to disk use

```
LIST "D:CHEXSUM"
```

To save it to tape use

```
LIST "C:CHEXSUM"
```

The LIST command saves a copy of the CHEXSUM program to either tape or disk in ASCII. It is only possible to reload an ASCII file using:

For tape

```
ENTER "C:CHEXSUM"
```

For Disk

ENTER "D:CHEXSUM"

You can type in the CHEXSUM program at any time, even if you have started to type in a program. You cannot, of course LOAD in CHEXSUM from tape or disk because it will erase all you have typed so far. The obvious solution is to merge the programs. The CHEXSUM program should be saved onto a separate cassette to allow easy access.

HOW CAN YOU TELL IF CHEXSUM HAS BEEN ENTERED CORRECTLY

After having keyed in CHEXSUM it is very important that you know that CHEXSUM is working perfectly. Follow these instructions:

1. Type in the CHEXSUM program and save it to disk or tape with the commands suggested above.

2. Manually compare the CHEXSUM program you have typed in with the book. Get someone to read the book out to you while you check it against whats in the computer.

3. Keep repeating steps 1 and 2 until the checksum program is perfect.

Here is a listing of CHEXSUM and instructions on it's use:

```
32ØØØ TOTAL=Ø
32Ø1Ø STMTAB=PEEK(136)+PEEK(137)*256
32Ø2Ø NUM=PEEK(STMTAB)+PEEK(STMTAB+1)*256
32Ø3Ø IF NUM=32ØØØ THEN GOTO 32Ø7Ø
32Ø4Ø IF PEEK(STMTAB+4)=Ø THEN 32Ø5Ø
32Ø41 LINETOTAL=Ø:? "LINE▲NUMBER:▲▲";NUM;"▲=▲";
32Ø43 FOR T=STMTAB+4 TO STMTAB+PEEK(STMTAB+2)-1
32Ø44 LINETOTAL=LINETOTAL+PEEK(T)
32Ø45 NEXT T
32Ø46 TOTAL=TOTAL+LINETOTAL
32Ø49 ? LINETOTAL
32Ø5Ø STMTAB=STMTAB+PEEK(STMTAB+2)
32Ø6Ø GOTO 32Ø2Ø
32Ø7Ø ? "TOTAL▲=▲";TOTAL
```

USING CHEXSUM

CHEXSUM is a special program which generates a unique sum for each line in a program and a grand total of all sums. After each program listing is a table of checksums. You need only compare the numbers in the CHEXSUM table for each program with those generated by CHEXSUM. If two numbers differ, check that particular line.

1. Type in your game program, PINGPONG, say. Save it to tape or disk.

2. If you have just typed in a program then ignore this step otherwise LOAD in you game from tape or disk.

3. Merge the CHEXSUM program onto the end of your program. Do this by putting the tape or disk containing the chexsum program into the drive and for disk typing:

```
    ENTER "D:CHEXSUM"
```

for tape type:

```
    ENTER "C:CHEXSUM"
```

4. Once the CHEXSUM program has been merged onto the end of your game program, enter COTO 32ØØØ to activate CHEXSUM.

5. Chexsum will now output the checksum for the program. To halt the program press the Control and the '1' keys. Press again to restart output.

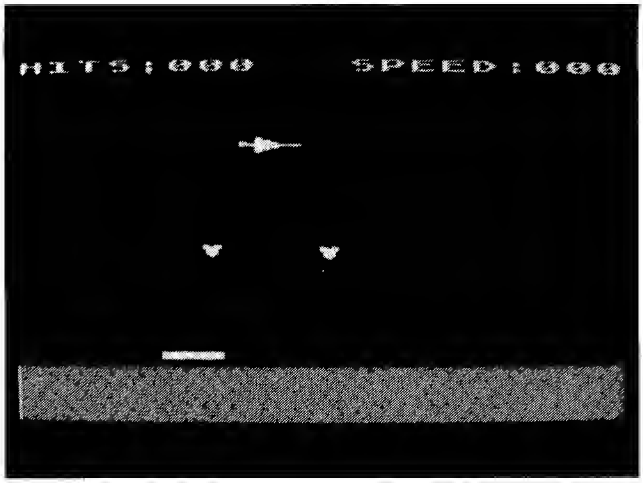
6. Check your grand total with that in the book. If they differ a line has been entered incorrectly. Compare line numbers until you locate the bad ones and then edit them.

7. Repeat steps 4 to 6 until the games program is debugged.

8. When the games program is running satisfactorily, delete the Chexsum program from the end of your game.

9. Finally save the debugged version onto a tape or disk.

BOMBER



CLASSIFICATION: Skill

A plane is flying above and periodically dropping bombs on the cities below. You have a shield which you must use to explode the bombs with before they hit the ground. The longer the game runs the faster the bomber flies and the faster the bombs are dropped. After a hundred bombs are dropped the speed decreases and after a hundred catches the speed increases. Use joystick one to move the shield left and right.

PROGRAMMING SUGGESTIONS

Have more than one bomber flying overhead and increase the number of bombs that can be dropped.

Program Variables

I	General purpose variable
PMBASE	Pointer to player missile data
PM	Page pointer to player missile data
A	Holds data begin read from data statement

Program Structure

5 - 8	Clear memory and read in programs
10 - 85	Set up graphics mode
10∅ - 12∅	Data for players
1∅∅∅	Call machine langugae program
5∅∅∅ - 541∅	Data for machine language program

Listing

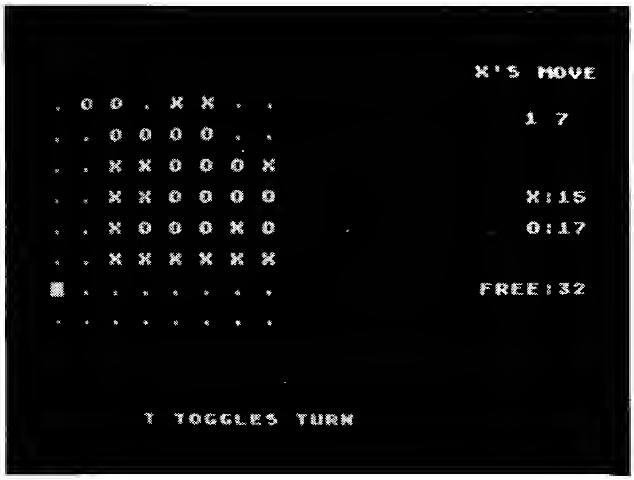
```
5       FOR I=33792 TO 33792+1023:POKE I,0:NEXT I
7       FOR I=30720 TO 30720+78:READ A:POKE I,A:NEXT I
8       FOR I=28672 TO 29510:READ A:POKE I,A:NEXT I
10      POKE 106,128
20      PM=PEEK(106):PMBASE=PM*256
30      GRAPHICS 1
35      PRINT #6;"CAUGHT:▲▲▲▲HITS:"
40      POKE 559,62
50      POKE 53277,3
60      POKE 54279,PM
70      POKE 53256,2:POKE 53257,2
80      POKE 704,77:POKE 705,88:POKE 706,88
85      POKE 707,88
100     DATA 0,32,48,184,255,56,48,32,0,0,0,0,0,0,0,0,0,0,0,0
110     DATA 255,255,255,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
115     DATA 0,0,123,255,255,123,0,0,0,0,0,0,0,0,0,0,0,0,0,0
120     DATA 0,0,123,255,255,123,0,0,0,0,0,0,0,0,0,0,0,0
1000    A=USR(112*256)
5000    DATA 32,27,112,32,72,112,32,151,112,32,41,113,32,239,11
        3,32,75,113,32,131
5010    DATA 113,32,206,113,76,3,112,169,0,141,5,115,169,50,141
        ,4,115,169,8,141
5020    DATA 7,115,169,50,141,19,115,169,150,141,18,115,169,0,1
        41,62,115,141,63,115
5030    DATA 141,66,115,141,56,115,169,5,141,65,115,96,173,60,1
        15,240,4,206,60,115
5040    DATA 96,173,65,115,141,60,115,173,7,115,201,4,240,5,201
        ,8,240,26,96,173
5050    DATA 5,115,240,4,206,5,115,96,169,8,141,7,115,32,127,11
        3,201,100,176,249
5060    DATA 141,4,115,96,173,5,115,201,163,240,4,238,5,115,96,
        169,4,141,7,115
5070    DATA 32,127,113,201,100,176,249,141,4,115,96,173,59,115
        ,240,4,206,59,115,96
5080    DATA 173,65,115,141,59,115,173,62,115,201,1,240,6,32,19
        7,112,76,182,112,32
5090    DATA 247,112,173,63,115,201,1,240,4,32,222,112,96,32,16
        ,113,96,32,127,113
5100    DATA 201,210,176,17,169,1,141,62,115,173,5,115,141,33,1
        15,173,4,115,141,32
5110    DATA 115,96,32,127,113,201,200,144,17,169,1,141,63,115,
        173,5,115,141,47,115
5120    DATA 173,4,115,141,46,115,96,173,32,115,201,155,240,4,2
        38,32,115,96,169,0
5130    DATA 141,62,115,169,220,141,32,115,238,56,115,96,173,46
        ,115,201,155,240,4,238
5140    DATA 46,115,96,169,0,141,63,115,169,220,141,46,115,238,
        56,115,96,32,247,114
5150    DATA 201,4,240,5,201,8,240,12,96,173,19,115,201,0,240,3
        ,206,19,115,96
5160    DATA 173,19,115,201,163,240,3,238,19,115,96,173,13,208,
        170,41,4,208,6,138
5170    DATA 41,8,208,20,96,169,0,141,62,115,169,220,141,32,115
        ,169,0,141,30,208
```

```
5180  DATA 238,66,115,96,169,0,141,63,115,169,220,141,46,115,
      169,0,141,30,208,238
5190  DATA 66,115,96,173,10,210,96,173,66,115,32,172,113,162,
      3,160,0,189,199,113
5200  DATA 153,135,125,200,202,208,246,173,56,115,32,172,113,
      162,3,160,0,189,199,113
5210  DATA 153,144,125,200,202,208,246,96,162,3,56,160,0,253,
      202,113,144,3,200,208
5220  DATA 248,125,202,113,72,152,9,16,157,199,113,104,202,20
      8,231,96,0,0,0,1
5230  DATA 10,100,173,66,115,201,100,240,8,173,56,115,201,100
      ,240,10,96,206,65,115
5240  DATA 169,0,141,66,115,96,238,65,115,169,0,141,56,115,96
      ,120,32,202,114,160
5250  DATA 14,162,0,189,253,114,149,176,232,136,208,247,32,10
      8,114,160,14,162,0,181
5260  DATA 176,157,253,114,232,136,208,247,160,14,162,0,189,1
      1,115,149,176,232,136,208
5270  DATA 247,32,108,114,160,14,162,0,181,176,157,11,115,232
      ,136,208,247,160,14,162
5280  DATA 0,189.25,115,149,176,232,136,208,247,32,108,114,16
      0,14,162,0,181,176,157
5290  DATA 25,115,232,136,208,247,160,14,162,0,189,39,115,149
      ,176,232,136,208,247,32
5300  DATA 108,114,160,14,162,0,181,176,157,39,115,232,136,20
      8,247,32,216,114,88,96
5310  DATA 165,183,197,182,240,68,160,0,165,184,24,105,46,145
      ,176,169,32,24,101,182
5320  DATA 168,166,185,169,0,145,178,200,202,16,250,169,32,24
      ,101,183,141,64,115,162
5330  DATA 0,142,53,115,166,185,172.53,115,177,180,238,53,115
      ,172,64,115,145,178,238
5340  DATA 64,115,202,16,237,165,183,133,182,165,184,133,189,
      96,165,184,197,189,208,182
5350  DATA 96,173,57,115,41,15,170,189,230,114,238,57,115,96,
      160,14,162,0,181,176
5360  DATA 157,68,115,232,136,208,247,96,160,14,162,0,189,68,
      115,149,176,232,136,208
5370  DATA 247,96,1,2,3,4,5,10,7,8,7,8,11,4,2,4,1,4,8,173
5380  DATA 0,211,73,255,96,0,208,0,132,0,120,0,0,0,8,0,16,0,0
      ,1
5390  DATA 208,0,133,20,120,0,0,0,8,0,16,0,0,2,208,0,134,40,1
      20,0
5400  DATA 0,0,8,0,16,0,0,3,208,0,135,60,120,0,0,0,8,0,0,0
5410  DATA 0,0,0,79,0,0,0,0,0,0,0,0,0,5,0,0,0,0,156
```

ChexSum Tables

5	= 1421
7	= 1494
8	= 1568
10	= 277
20	= 1124
30	= 144
35	= 1218
40	= 420
50	= 406
60	= 473
70	= 782
80	= 1203
85	= 378
100	= 2454
110	= 2368
115	= 2372
120	= 2188
1000	= 716
5000	= 3467
5010	= 3393
5020	= 3601
5030	= 3556
5040	= 3405
5050	= 3450
5060	= 3358
5070	= 3611
5080	= 3549
5090	= 3484
5100	= 3533
5110	= 3590
5120	= 3507
5130	= 3706
5140	= 3623
5150	= 3285
5160	= 3509
5170	= 3446
5180	= 3616
5190	= 3567
5200	= 3748
5210	= 3630
5220	= 3390
5230	= 3619
5240	= 3559
5250	= 3703
5260	= 3866
5270	= 3745
5280	= 3714
5290	= 3769
5300	= 3719
5310	= 3726
5320	= 3761
5330	= 3776
5340	= 3956
5350	= 3625
5360	= 3788
5370	= 2398
5380	= 2652
5390	= 2736
5400	= 2390
5410	= 2037
TOTAL	= 166569

OTHELLO



```
                                   X'S MOVE
 . O O . X X . .
 . . O O O O . .                      1 7
 . . X X O O O X
 . . X X O O O O                      X:15
 . . X O O O X O                      O:17
 . . X X X X X X
 ■ . . . . . . .                    FREE:32
 . . . . . . . .

         T TOGGLES TURN
```

CLASSIFICATION: Strategy

This game uses the computer as a medium for two people to play the game of Othello. Pressing / or ? will display all the legal moves on the board as question marks. Placing the cursor over any man and pressing fire will do the same. If you have no legal moves then press T to change who's turn it is. Displayed on the right hand side of the screen is :

Who's turn (X or O)
The cursors current position x,y
The number of X's
The number of O's
The amount of free spaces on board

Use either joystick to move the cursor over the board. Press fire on either joystick to make a move. If you don't know how to play use ? to display legal moves and observe the results of making these moves. The object of the game is to have the most men at the end of the game. If a player has no legal moves then it becomes the other players turn to move (use T). The game is over when there are no legal moves for either player.

PROGRAMMING SUGGESTIONS

The board display could be done in high resolution with color. A command to take back the last move made would be useful. The machine could play against a human.

Program Variables

B()	Holds the position of men on the board
C	Local variable
CURH	Cursor's horizontal position
CURV	Cursor's vertical position
LOOP	Loop counter
O	Used in count men routine
OLDCUR	Cursor's old position
P	Index to array
PH	Holds inital value of P
R	Local variable
SCREEN	Address of start of video RAM
STOR	Stores value of character under the cursor
TURN	Who's turn 1 or -1
V	Used in move cursor routine
VALID	Ø if move not valid else =1
X	Local variable,in delay routine etc.
Z	Local variable
ZZ	Counter for display in find all legal moves routine

Program Structure

1Ø	Set colors and jump to initialization
1ØØ - 8ØØ	Make a move
1ØØØ - 156Ø	Find and make legal moves
9ØØØ	Delay routine
91ØØ	Invalid move routine
1ØØØØ - 1ØØ8Ø	Draw the board
1Ø1ØØ - 1Ø13Ø	Count number of men
1Ø15Ø - 1Ø22Ø	Print information
11ØØØ - 1114Ø	Move the cursor
12ØØØ - 12Ø4Ø	Put the cursor on screen
2ØØØØ - 2ØØ3Ø	Initialize the system
3ØØØØ - 3ØØ7Ø	Main loop

Listing

Set colors and jump to initialization

```
10     SETCOLOR 1,0,12:SETCOLOR 2,0,0:POKE 752,1:GOTO 20000
50     DATA -10,-9,-8,-1,1,8,9,10
```

Make a move

```
100    IF STOR=31 THEN STOR=14
110    VALID=0:IF STOR<>14 THEN 1000
120    RESTORE 50:C=CURV:R=CURH
200    FOR LOOP=1 TO 8
210    P=R*9+C:PH=P
220    READ Z
230    P=P+Z
240    IF B(P)=0 THEN 500
250    IF B(P)=TURN THEN 500
260    P=P+Z
270    IF B(P)=0 THEN 500
280    IF B(P)=-TURN THEN GOTO 260
290    P=PH
300    VALID=1
310    B(P)=TURN
320    P=P+Z
330    IF B(P)=TURN THEN 500
340    GOTO 310
500    NEXT LOOP
600    IF  NOT VALID THEN GOTO 9100
610    STOR=47:IF TURN=1 THEN STOR=56
700    TURN=-TURN
800    GOTO 30000
```

Find and make legal moves

```
1000   POKE OLDCUR,STOR:ZZ=63:VALID=0:FOR C=1 TO 8:FOR R=1 TO
       8:RESTORE 50:POSITION 20,0:? ZZ;"▲";:ZZ=ZZ-1
1010   P=R*9+C:IF B(P) THEN 1510
1200   FOR LOOP=1 TO 8:P=R*9+C:PH=P:READ Z:P=P+Z:IF B(P)=0 OR
       B(P)=4 THEN 1500
1250   IF B(P)=TURN THEN 1500
1270   P=P+Z:IF B(P)=0 OR B(P)=4 THEN 1500
1280   IF B(P)=-TURN THEN 1270
1310   VALID=1:B(PH)=4:LOOP=8
1500   NEXT LOOP
```

```
1510  NEXT R:NEXT C
1520  IF VALID THEN GOTO 1550
1530  POSITION 8,23:? "YOU HAVE NO MOVES";
1540  GOSUB 9000:TURN=-TURN:GOTO 30000
1550  P=CURH*9+CURV:IF B(P)=4 THEN STOR=31
1560  GOTO 30000
```

Delay routine

```
9000  FOR X=1 TO 1000:NEXT X:RETURN
```

Invalid move routine

```
9100  POSITION 7,23:? "▲▲";:POSITION 10,23:? " INVALID
      MOVE ";:GOSUB 9000:GOTO 30000
9998  REM G.STRETTON 85
```

Draw the board

```
10000 ? CHR$(125):?
10010 FOR C=1 TO 8:FOR R=1 TO 8:P=R*9+C:IF B(P)=4 THEN ? "?▲"
      ;:B(P)=0:NEXT R:? :? :NEXT C:GOTO 10100
10050 IF  NOT B(P) THEN ? ".▲";:GOTO 10080
10060 IF B(P)=1 THEN ? "X▲";:NEXT R:? :? :NEXT C:GOTO 10100
10070 ? "O▲";
10080 NEXT R:? :? :NEXT C
```

Count number of men

```
10100 X=0:O=0:FOR R=10 TO 80:IF  NOT B(R) THEN NEXT R:GOTO 10
      150
10110 IF B(R)=1 THEN X=X+1
10120 IF B(R)=-1 THEN O=O+1
10130 NEXT R
```

Print information

```
10150 POSITION 33,8:? "X:";X;
10160 POSITION 33,10:? "O:";O;
10170 POSITION 30,14:? "FREE:";64-(X+O);
10180 POSITION 30,0:IF TURN=1 THEN ? "X";
10190 IF TURN=-1 THEN ? "O";
10200 ? "'S▲MOVE";
10210 POSITION 8,23:? "T▲TOGGLES▲TURN";
10220 RETURN
```

Move the cursor

```
11000 V=STICK(0):IF V=15 THEN V=STICK(1)
11010 IF V=15 THEN RETURN
11020 IF V=14 THEN CURV=CURV-1
11030 IF V=6 THEN CURV=CURV-1:CURH=CURH+1
11040 IF V=7 THEN CURH=CURH+1
11050 IF V=5 THEN CURH=CURH+1:CURV=CURV+1
11060 IF V=13 THEN CURV=CURV+1
11070 IF V=9 THEN CURV=CURV+1:CURH=CURH-1
11080 IF V=11 THEN CURH=CURH-1
11090 IF V=10 THEN CURH=CURH-1:CURV=CURV-1
11100 IF CURH<1 THEN CURH=CURH+8
11110 IF CURH>8 THEN CURH=CURH-8
11120 IF CURV<1 THEN CURV=CURV+8
11130 IF CURV>8 THEN CURV=CURV-8
11140 RETURN
```

Put the cursor on screen

```
12000 POKE OLDCUR,STOR
12010 OLDCUR=SCREEN+(CURV*80)+(CURH*2)
12020 STOR=PEEK(OLDCUR)
12030 POKE OLDCUR,128
12040 RETURN
```

Initialize the system

```
20000 ? CHR$(125):DIM B(90):FOR X=0 TO 90:B(X)=0:NEXT X
20020 B(41)=1:B(49)=1:B(40)=-1:B(50)=-1:TURN=1
20030 SCREEN=40000:CURH=1:CURV=1:STOR=14:OLDCUR=SCREEN+(CURV*
      80)+(CURH*2)
```

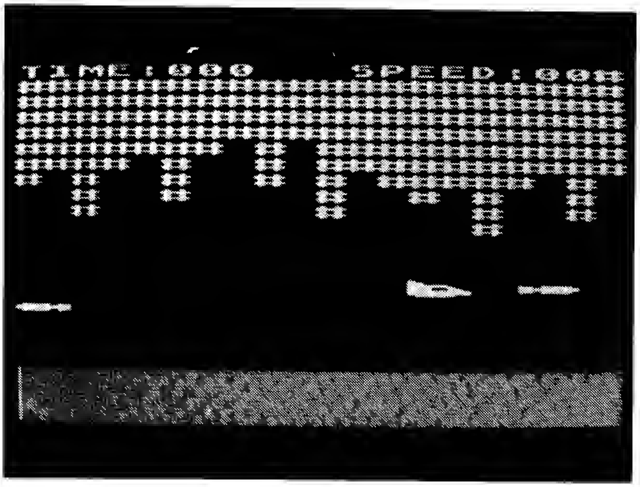
Main loop

```
30000 GOSUB 10000:REM DRAW SCREEN
30010 GOSUB 11000:REM ADJUST CURSOR
30020 GOSUB 12000:REM PUT CURSOR
30030 IF ( NOT STRIG(1)) OR ( NOT STRIG(0)) THEN 100
30040 G=PEEK(754):IF G=45 THEN POKE 754,255:TURN=-TURN:GOTO 3
      0000
30050 POSITION 33,3:? CURH;"▲";CURV;
30060 IF G=38 OR G=102 THEN POKE 754,255:GOTO 1000
30070 POKE 77,0:FOR X=1 TO 6:NEXT X:POKE OLDCUR,STOR:FOR X=1
      TO 3:NEXT X:GOTO 30010
```

ChexSum Tables

10	= 1146	1500	= 173	11050	= 1407
50	= 1162	1510	= 349	11060	= 861
100	= 713	1520	= 400	11070	= 1412
110	= 720	1530	= 3809	11080	= 864
120	= 1055	1540	= 887	11090	= 1420
200	= 407	1550	= 1705	11100	= 841
210	= 1133	1560	= 115	11110	= 850
220	= 201	9000	= 716	11120	= 835
230	= 589	9100	= 4238	11130	= 844
240	= 577	10000	= 422	11140	= 58
250	= 710	10010	= 4227	12000	= 355
260	= 589	10050	= 928	12010	= 1308
270	= 577	10060	= 1539	12020	= 577
280	= 890	10070	= 211	12030	= 339
290	= 408	10080	= 498	12040	= 58
300	= 337	10100	= 2185	20000	= 2254
310	= 657	10110	= 1102	20020	= 3127
320	= 589	10120	= 1159	20030	= 2891
330	= 710	10130	= 171	30000	= 1077
340	= 130	10150	= 746	30010	= 1282
500	= 173	10160	= 746	30020	= 1085
600	= 485	10170	= 1466	30030	= 896
610	= 1185	10180	= 777	30040	= 2169
700	= 469	10190	= 549	30050	= 778
800	= 115	10200	= 570	30060	= 1295
1000	= 3725	10210	= 1445	30070	= 2309
1010	= 1295	10220	= 58		
1200	= 3719	11000	= 1399	TOTAL	= 96503
1250	= 726	11010	= 395		
1270	= 1773	11020	= 863		
1280	= 889	11030	= 1409		
1310	= 1347	11040	= 853		

MOUNTAINS



CLASSIFICATION: Arcade

Fly the ship through the mountains for as long as possible without hitting the mountains. If your ship tounches the mountains the hit count is incremented. Every now and again a missile will fly by and you must avoid it or the hit counter will be incremented. Move the ship using joystick port 1.

PROGRAMMING SUGGESTIONS

Increase the intelligence of the enemy missiles so that when they come hurtling across the screen they will seek your craft out. Add objects to the bottom of the landscape that you have to pick up to keep the game going. Give the player a limited amount of fuel and time to complete his journey through the mountains.

Program Variables

I	General purpose variable
PMBASE	Pointer to player/missile area
A	Dummy variable

Program Structure

1 - 8Ø	Initialize memory and variables
9Ø	Call machine language program
1ØØ - 12Ø	Data for players
2ØØØ - 2114	Data for machine language program

Listing

```
1       PRINT CHR$(125);"INITIALIZATION▲PLEASE▲WAIT"
5       FOR I=30720 TO 30720+48:READ A:POKE I,A:NEXT I
6       FOR I=28672 TO 29820:READ A:POKE I,A:NEXT I
7       FOR I=33792 TO 33792+1023:POKE I,0:NEXT I
10      POKE 106,128
20      PM=PEEK(106):PMBASE=PM*256
30      GRAPHICS 1
40      POKE 559,62
50      POKE 53277,3
60      POKE 54279,PM
70      POKE 53256,1
80      POKE 704,77:POKE 705,88:POKE 706,88
90      A=USR(112*256)
100     DATA 128,192,248,228,226,255,255,124,0,0,0,0,0,0,0,0,0,
        0,0,0
110     DATA 0,0,123,255,255,123,0,0,0,0,0,0,0,0,0,0,0,0,0
120     DATA 0,0,222,255,255,222,0,0,0
2000    DATA 32,30,112,32,216,113,32,138,112,32,77,114,32,169,1
        14,32,75,115,32,252
2002    DATA 114,32,18,113,238,124,116,76,3,112,169,1,141,123,1
        16,141,214,113,169,206
2004    DATA 141,88,116,169,50,141,87,116,169,0,141,74,115,141,
        73,115,133,77,141,30
2006    DATA 208,162,4,160,0,185,90,112,153,128,125,200,202,208
        ,246,162,6,160,0,185
2008    DATA 94,112,153,139,125,200,202,208,246,96,40,41,52,26,
        51,35,47,50,37,26
2010    DATA 206,127,116,96,162,3,56,160,0,253,134,112,144,3,20
        0,208,248,125,134,112
2012    DATA 72,152,9,16,157,131,112,104,202,208,231,96,0,0,0,1
        ,10,100,174,127
2014    DATA 116,208,213,162,60,142,127,116,162,0,160,19,189,14
        9,125,157,148,125,189,169
2016    DATA 125,157,168,125,189,189,125,157,188,125,189,209,12
        5,157,208,125,189,229,125,157
2018    DATA 228,125,189,249,125,157,248,125,189,13,126,157,12,
        126,189,33,126,157,32,126
2020    DATA 189,53,126,157,52,126,189,73,126,157,72,126,189,93
        ,126,157,92,126,189,113
2022    DATA 126,157,112,126,189,133,126,157,132,126,189,153,12
        6,157,152,126,189,173,126,157
2024    DATA 172,126,189,193,126,157,192,126,189,213,126,157,21
        2,126,189,233,126,157,232,126
2026    DATA 189,253,126,157,252,126,232,136,208,138,32,59,113,
        96,173,73,115,32,104,112
2028    DATA 162,3,160,0,189,131,112,153,132,125,200,202,208,24
        6,173,74,115,32,104,112
2030    DATA 162,3,160,0,189,131,112,153,145,125,200,202,208,24
        6,96,169,167,133,240,169
2032    DATA 125,133,241,160,0,162,18,169,0,145,240,169,20,24,1
        01,240,133,240,169,0
2034    DATA 101,241,133,241,202,208,236,32,176,113,174,214,113
        ,169,167,133,240,169,125,133
2036    DATA 241,160,0,169,3,145,240,165,240,24,105,20,133,240,
        169,0,101,241,133,241
```

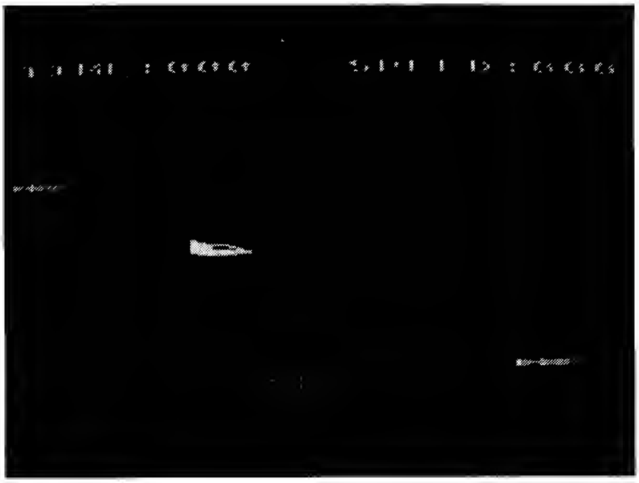
```
2038  DATA 202,208,236,169,5,24,109,214,113,141,215,113,56,16
      9,20,237,215,113,240,31
2040  DATA 170,169,15,133,240,169,127,133,241,160,0,169,3,145
      ,240,165,240,56,233,20
2042  DATA 133,240,165,241,233,0,133,241,202,208,236,96,173,1
      0,210,170,41,1,208,17
2044  DATA 138,41,128,208,1,96,173,214,113,201,15,240,3,238,2
      14,113,96,173,214,113
2046  DATA 201,1,240,232,206,214,113,76,184,113,7,0,173,77,11
      6,13,78,116,240,12
2048  DATA 173,77.116,208,3,206,78,116,206,77,116,96,169,7,14
      1,77,116,169,0,141
2050  DATA 78,116,32,71,114,201,1,240,16,201,2,240,22,201,4,2
      40,30,201,8,240
2052  DATA 36,32,57,114,96,174,73,116,240,4,202,142,73,116,96
      ,174,73,116,224,151
2054  DATA 240,4,232,142,73,116,96,174,74,116,240,4,202,142,7
      4,116,96,174,74,116
2056  DATA 224.205,240,4,232,142,74,116,96,173,74,116,240,8,2
      06,74,116,169,20,141
2058  DATA 126,116,96,173,0,211,73,255,96,173,123,116,208.32,
      32,252,115,201,210,176
2060  DATA 3,32,93,114,96,169,1,141,123,116,32,252,115,201,15
      1,176,249,141,87,116
2062  DATA 169,206,141,88,116,96,173,91,116,13,92,116,240,12,
      173,91,116,208,3,206
2064  DATA 92,116,206.91,116,96,173,88,116,240,14,206,88,116,
      169,7,141,91,116,169
2066  DATA 0,141,92,116,96,169,0,141,123,116,169,7,141,91,116
      ,169,0,141,92,116
2068  DATA 96,173,128,116,240,4,32,205,114,96,173,132,2,240,1
      ,96,173,73,116,141
2070  DATA 101,116,173,74,116,24,105,8,141,102,116,169,1,141,
      128,116,96,173,105,116
2072  DATA 13,106,116,240,12,173,105,116,208,3,206,106,116,20
      6,105,116,96,173,102,116
2074  DATA 201,206,240,14,238,102,116,169,5,141,105,116,169,0
      ,141,106,116,96,169,0
2076  DATA 141,128,116,96,173,4,208,41,1,208,15,173,12,208,41
      ,2,208,17,173,13
2078  DATA 208.41,4,208,27,96,238,73,115,169,0,141,30,208,96,
      169,200,141,87,116
2080  DATA 141,88,116,169,0,141,123,116,32,18,115,96,169,200,
      141,87,116,141,88,116
2082  DATA 141,101,116,141,102,116,169,0,141,123,116,141,30,2
      08,141,128,116,238,74,115
2084  DATA 96.0,0,120,32,21,116,160,14,162,0,189.66,116,149,1
      76,232,136,208,247
2086  DATA 32,171,115,160,14,162,0,181,176,157,66,116,232,136
      ,208,247,160,14,162,0
2088  DATA 189,80,116,149,176,232,136,208,247,32,171,115,160,
      14,162,0,181,176,157,80
2090  DATA 116,232,136,208,247,160,14,162,0,189,94,116,149,17
      6,232,136,208,247,32,171
2092  DATA 115,160,14,162,0,181,176,157,94,116,232,136,208,24
      7,32,35,116,88,96,165
2094  DATA 183,197,182,240,68,160,0,165,184,24,105,46,145,176
      ,169,32,24,101,182,168
```

```
2096  DATA 166,185,169,0,145,178,200,202,16,250,169,32,24,101
      ,183,141,129,116,162,0
2098  DATA 142,122,116,166,185,172,122,116,177,180,238,122,11
      6,172,129,116,145,178,238,129
2100  DATA 116,202,16,237,165,183,133,182,165,184,133,189,96,
      165,184,197,189,208,182,96
2102  DATA 173,124,116,10,144,2,73,29,141,124,116,96,173,10,2
      10,173,10,210,173,10
2104  DATA 210,173,10,210,96,160,14,162,0,181,176,157,130,116
      ,232,136,208,247,96,160
2106  DATA 14,162,0,189,130,116,149,176,232,136,208,247,96,1,
      2,3,4,5,10,7
2108  DATA 8,7,8,11,4,2,4,1,4,8,0,208,0,132,0,120,0,0,0,8
2110  DATA 0,16,0,0,1,208,0,133,20,120,0,0,0,8,0,16,0,0,2,208


2112  DATA 0,134,40,120,0,0,0,8,0,16,0,0,3,208,0,135,60,120,0
      ,0
2114  DATA 0,8,0,0,0,0,0,0,79
```

ChexSum Tables

1	=	2276	2020	=	3811	2072	=	3780
5	=	1446	2022	=	4086	2074	=	3643
6	=	1587	2024	=	4089	2076	=	3399
7	=	1421	2026	=	3820	2078	=	3524
10	=	277	2028	=	3724	2080	=	3667
20	=	1124	2030	=	3807	2082	=	3824
30	=	144	2032	=	3580	2084	=	3505
40	=	420	2034	=	3994	2086	=	3648
50	=	406	2036	=	3621	2088	=	3773
60	=	473	2038	=	3741	2090	=	3822
70	=	371	2040	=	3700	2092	=	3678
80	=	1203	2042	=	3629	2094	=	3729
90	=	716	2044	=	3646	2096	=	3701
100	=	2810	2046	=	3488	2098	=	4073
110	=	2372	2048	=	3539	2100	=	3962
120	=	1360	2050	=	3307	2102	=	3577
2000	=	3534	2052	=	3568	2104	=	3749
2002	=	3688	2054	=	3566	2106	=	3206
2004	=	3613	2056	=	3608	2108	=	2363
2006	=	3589	2058	=	3701	2110	=	2537
2008	=	3458	2060	=	3607	2112	=	2637
2010	=	3639	2062	=	3620	2114	=	1012
2012	=	3320	2064	=	3641			
2014	=	3878	2066	=	3460			
2016	=	4118	2068	=	3508	TOTAL	=	225500
2018	=	3892	2070	=	3695			

VOGONS



CLASSIFICATION: Skill

Move your player around the screen for as long as possible, avoiding the dreaded **Vogons**. There are three **Vogons** and they move around the screen at random, very quickly. At the start of the game you are prompted for the speed you want the **Vogons** to travel at. You may input any value between 1 and 255, with 1 being the highest speed and 255 the slowest. Use joystick 1 to move your player left, right, up and down. The longer you survive the more the score counter is incremented. When you are hit by a **Vogon** the score counter is set to zero.

PROGRAMMING SUGGESTIONS

Plant mines on the screen to restrict the area your player can move in and add 'bombs' that will disable or freeze your movement temporarily.

Program Variables

I	General purpose variable
PMBASE	Location of player missle data
PM	Pointer to player missile data
A	Holds data read from data statements

Program Structure

1 - 6	Clear the player area and read data
1Ø - 85	Setup the player missiles
9Ø	Call machine language program
1ØØ - 13Ø	Data for players
5ØØØ - 546Ø	Data for machine language program

Listing

```
1       FOR I=33792 TO 33792+1023:POKE I,Ø:NEXT I
5       FOR I=30720 TO 30720+79:READ A:POKE I,A:NEXT I
6       FOR I=28672 TO 29600:READ A:POKE I,A:NEXT I
10      POKE 106,128
20      PM=PEEK(106):PMBASE=PM*256
25      PRINT CHR$(125);:PRINT "WHAT▲SPEED▲";
26      INPUT A:IF A<1 OR A>9 THEN GOTO 26
27      POKE 29595,A
30      GRAPHICS 1
35      POSITION Ø,Ø:PRINT #6;"TIME:▲▲▲▲▲SPEED:"
40      POKE 559,62
50      POKE 53277,3
60      POKE 54279,PM
70      POKE 53256,3:POKE 53257,3:POKE 53258,3:POKE 53259,3
80      POKE 704,77:POKE 705,88:POKE 706,88
85      POKE 707,77
90      A=USR(112*256)
```

Data for players

```
100     DATA 128,192,248,228,226,255,255,124,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,
        Ø,Ø,Ø
110     DATA Ø,Ø,123,255,255,123,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø
120     DATA Ø,Ø,222,255,255,222,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø
130     DATA Ø,Ø,222,255,255,222,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø
```

Data for machine language program

```
5000    DATA 32,21,112,32,169,112,32,253,112,32,101,114,32,44,1
        14,32,87,112,76,3
5010    DATA 112,169,Ø,141,143,115,169,50,141,91,115,141,90,115
        ,169,8,141,107,115,169
5020    DATA Ø,141,105,115,169,50,140,104,115,169,50,141,119,11
        5,141,118,115,169,2,141
5030    DATA 121,115,169,25,141,133,115,141,132,115,169,4,141,1
        35,115,169,Ø,141,149,115
5040    DATA 141,148,115,141,30,208,96,173,149,115,13,150,115,2
        40,20,56,173,149,115,233
5050    DATA 1,141,149,115,173,150,115,233,Ø,141,150,115,76,128
        ,112,169,Ø,141,149,115
5060    DATA 169,3,141,150,115,238,148,115,173,148,115,32,61,11
        4,162,3,160,Ø,189,88
5070    DATA 114,153,133,125,200,202,208,246,173,155,115,32,61,
        114,162,3,160,Ø,189,88
5080    DATA 114,153,144,125,200,202,208,246,96,173,94,115,240,
        4,206,94,115,96,169,3
5090    DATA 141,94,115,32,95,114,170,41,1,208,16,138,41,2,208,
        23,138,41,4,208
5100    DATA 30,138,41,8,208,35,96,173,90,115,201,8,208,1,96,20
```

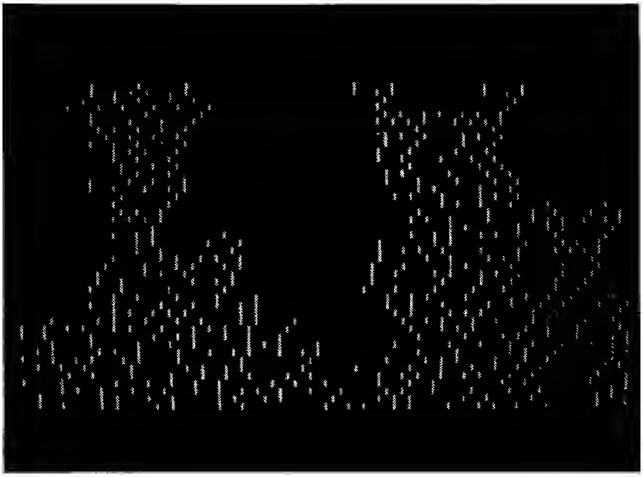
```
        6,90,115,96,173
5110    DATA 90,115,201,153,208,1,96,238,90,115,96,173,91,115,2
        08,1,96,206,91,115
5120    DATA 96,173,91,115,201,130,208,1,96,238,91,115,96,173,1
        42,115,240,4,206,142
5130    DATA 115,96,173,155,115,141,142,115,173,105,115,141,146
        ,115,173,104,115,141,147,115
5140    DATA 173,107,115,141,145,115,173,152,115,141,151,115,32
        ,166,113,173,151,115,141,152
5150    DATA 115,173,145,115,141,107,115,173,146,115,141,105,11
        5,173,147,115,141,104,115,173
5160    DATA 119,115,141,146,115,173,118,115,141,147,115,173,12
        1,115,141,145,115,173,153,115
5170    DATA 141,151,115,32,166,113,173,151,115,141,153,115,173
        ,145,115,141,121,115,173,146
5180    DATA 115,141,119,115,173,147,115,141,118,115,173,133,11
        5,141,146,115,173,132,115,141
5190    DATA 147,115,173,135,115,141,145,115,173,154,115,141,15
        1,115,32,166,113,173,151,115
5200    DATA 141,154,115,173,145,115,141,135,115,173,146,115,14
        1,133,115,173,147,115,141,132
5210    DATA 115,96,173,145,115,201,1,240,13,201,2,240,32,201,4
        ,240,51,201,8,240
5220    DATA 68,96,173,151,115,240,10,206,151,115,173,147,115,2
        01,8,208,4,32,20,114
5230    DATA 96,206,147,115,96,173,151,115,240,14,206,151,115,1
        73,147,115,201,153,240,4
5240    DATA 238,147,115,96,32,20,114,96,173,151,115,240,12,206
        ,151,115,173,146,115,240
5250    DATA 4,206,146,115,96,32,20,114,96,173,151,115,240,14,2
        06,151,115,173,146,115
5260    DATA 201,130,240,4,238,146,115,96,32,20,114,96,174,10,2
        10,224,4,176,249,189
5270    DATA 79,115,141,145,115,173,10,210,201,30,144,249,141,1
        51,115,96,173,12,208,41
5280    DATA 14,208,1,96,169,0,141,148,115,141,30,208,96,162,3,
        56,160,0,253,91
5290    DATA 114,144,3,200,208,248,125,91,114,72,152,9,16,157,8
        8,114,104,202,208,231
5300    DATA 96,0,0,0,1,10,100,173,0,211,73,255,96,120,32,51,11
        5,160,14,162
5310    DATA 0,189,83,115,149,176,232,136,208,247,32,226,114,16
        0,14,162,0,181,176,157
5320    DATA 83,115,232,136,208,247,160,14,162,0,189,97,115,149
        ,176,232,136,208,247,32
5330    DATA 226,114,160,14,162,0,181,176,157,97,115,232,136,20
        8,247,160,14,162,0,189
5340    DATA 111,115,149,176,232,136,208,247,32,226,114,160,14,
        162,0,181,176,157,111,115
5350    DATA 232,136,208,247,160,14,162,0,189,125,115,149,176,2
        32,136,208,247,32,226,114
5360    DATA 160,14,162,0,181,176,157,125,115,232,136,208,247,3
        2,65,115,88,96,165,183
5370    DATA 197,182,240,68,160,0,165,184,24,105,46,145,176,169
        ,32,24,101,182,168,166
5380    DATA 185,169,0,145,178,200,202,16,250,169,32,24,101,183
        ,141,144,115,162,0,142
5390    DATA 139,115,166,185,172,139,115,177,180,238,139,115,17
```

```
      2,144,115,145,178,238,144,115
5400  DATA 202,16,237,165,183,133,182,165,184,133,189,96,165,
      184,197,189,208,182,96,160
5410  DATA 14,162,0,181,176,157,156,115,232,136,208,247,96,16
      0,14,162,0,189,156,115
5420  DATA 149,176,232,136,208,247,96,1,2,4,8,0,208,0,132,0,1
      20,0,0,0
5430  DATA 8,0,16,0,0,1,208,0,133,20,120,0,0,0,8,0,16,0,0,2
5440  DATA 208,0,134,40,120,0,0,0,8,0,16,0,0,3,208,0,135,60,1
      20,0
5450  DATA 0,0,8,0,0,0,0,0,79,0,0,0,0,0,0,0,0,0,0,0
5460  DATA 0,0,0,0,0,0,4,33,0
```

ChexSum Tables

1 =	1421	5030 =	3790	5270 =	3739
5 =	1495	5040 =	3800	5280 =	3357
6 =	1553	5050 =	3686	5290 =	3649
10 =	277	5060 =	3613	5300 =	3168
20 =	1124	5070 =	3694	5310 =	3719
25 =	1230	5080 =	3666	5320 =	3777
26 =	931	5090 =	3347	5330 =	3712
27 =	580	5100 =	3375	5340 =	3847
30 =	144	5110 =	3521	5350 =	3863
35 =	1328	5120 =	3611	5360 =	3727
40 =	420	5130 =	3991	5370 =	3730
50 =	406	5140 =	3981	5380 =	3691
60 =	473	5150 =	4035	5390 =	4087
70 =	1663	5160 =	4039	5400 =	3961
80 =	1203	5170 =	3981	5410 =	3719
85 =	361	5180 =	4035	5420 =	2981
90 =	716	5190 =	3989	5430 =	2439
100 =	2810	5200 =	4036	5440 =	2743
110 =	2372	5210 =	3412	5450 =	2024
120 =	2372	5220 =	3591	5460 =	998
130 =	2372	5230 =	3799		
5000 =	3424	5240 =	3798		
5010 =	3704	5250 =	3696	TOTAL =	193135
5020 =	3733	5260 =	3606		

LIFE



CLASSIFICATION: Educational

Life is a simulation of the growth of a colony of cells that is controlled by prescribed rules. The joystick moves the cursor left and right. Pressing the fire button on the joystick sets the cell to the current cursor color. Pressing the R key sets a random starting pattern. Pressing the ESC key changes the cursor color and pressing RETURN exits the setup stage and starts the simulation.

PROGRAMMING SUGGESTIONS

Change the radius of the neighbourhood and change the rules that drive the game.

Program Variables

OLDCELLS()	Holds current array of cells
NUCELLS()	Working copy of cells
R()	Rule table
R	Radius of neighbourhood
K	Number of possible states of a cell

Program Structure

1Ø	Jump to initialization
1ØØ – 17Ø	Main Loop
5ØØØ	Display
6ØØØ – 6Ø8Ø	Calculate next generation
9ØØØ	Random setup
2ØØØØ – 2ØØ3Ø	Initialize routine
2ØØ5Ø – 2ØØ76	Set number of states
2Ø4ØØ – 23Ø1Ø	Setup initial formation

Listing

```
10     GOTO 2ØØØØ
```

Main Loop

```
1ØØ    POKE 77,Ø:OLDCELLS(81)=OLDCELLS(1):OLDCELLS(Ø)=OLDCELLS
       (8Ø)
14Ø    T=USR(1536):REM SCROLL SCREEN
15Ø    GOSUB 5ØØØ:REM DISPLAY
16Ø    GOSUB 6ØØØ:REM CALC NEXT GENERATION
17Ø    GOTO 1ØØ
```

Display

```
5ØØØ   POSITION Ø,OFFSET:FOR T=1 TO 8Ø:? #6;CHR$(OLDCELLS(T));
       :NEXT T:RETURN
```

Calculate next generation

```
6ØØØ   FOR I=1 TO 8Ø
6Ø1Ø   S=Ø:FOR P=I-R TO I+R
6Ø2Ø   Z=P:IF Z>8Ø THEN Z=Z-8Ø
6Ø3Ø   IF Z<1 THEN Z=Z+8Ø
6Ø4Ø   S=S+OLDCELLS(Z)
6Ø5Ø   NEXT P
6Ø6Ø   NUCELLS(I)=R(S)
6Ø7Ø   NEXT I
6Ø8Ø   FOR I=1 TO 8Ø:OLDCELLS(I)=NUCELLS(I):NEXT I:RETURN
```

Random setup

```
9ØØØ   FOR I=1 TO 8Ø:OLDCELLS(I)=INT(RND(Ø)*K):NEXT I:DSPFLAG=
       1:RETURN
2ØØØØ DIM OLDCELLS(81),NUCELLS(81)
2ØØ3Ø GOSUB 3ØØØØ
```

Initialize routine

```
2ØØ5Ø K=2:REM  NUMBER OF POSSIBLE STATES
2ØØ6Ø R=2:REM  RADIUS OF NEIGHBOURHOOD
2ØØ62 DIM R(5)
```

Set number of states

```
20071 R(0)=0
20072 R(1)=0
20073 R(2)=1
20074 R(3)=0
20075 R(4)=1
20076 R(5)=0
```

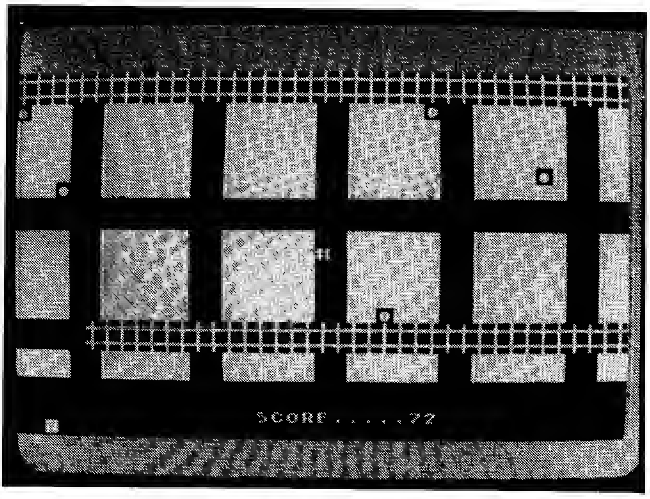
Setup initial formation

```
20400 FOR T=0 TO 81:OLDCELLS(T)=0
20410 NEXT T
21000 GRAPHICS 5
21010 X=40:? "R=RND▲▲RETURN=START▲JSTK▲MOVES▲CURSOR":? "Esc=C
      OLOUR"
21020 COLR=1
21030 OFFSET=0
21040 IF DSPFLAG THEN GOSUB 5000
21050 A=STICK(1):OLDX=X:DSPFLAG=0
21060 IF A=11 THEN X=X-1:IF X<0 THEN X=X+80
21070 IF A=7 THEN X=X+1:IF X>79 THEN X=X-80
21090 POSITION OLDX,1:? #6,CHR$(0);
21100 POSITION X,1:? #6;CHR$(COLR);
21110 IF  NOT STRIG(1) THEN OLDCELLS(X+1)=COLR:DSPFLAG=1
21130 A=PEEK(764):POKE 764,255
21140 IF A=28 THEN COLR=COLR+1:IF COLR>K-1 THEN COLR=0
21150 IF A=40 THEN GOSUB 9000
22000 IF A<>12 THEN GOTO 21040
23000 GRAPHICS 5+16:REM G.STRETTON 85
23010 OFFSET=47:GOTO 100
30000 FOR T=1536 TO 1601:READ A:POKE T,A:NEXT T:RETURN
31000 DATA 104,169,47,141,66,6,169,160,133,203,169,155,133,20
      4,169,180,133,205,169,155
31001 DATA 133,206,160,0,162,20,177,205,145,203,200,202,208,2
      48,165,203,24,105,20
31002 DATA 133,203,169,0,101,204,133,204,165,205,24,105,20,13
      3,205,169,0,101,206
31003 DATA 133,206,206,66,6,208,213,96
```

ChexSum Tables

10	=	114
100	=	2084
140	=	1705
150	=	903
160	=	1804
170	=	112
5000	=	1934
6000	=	523
6010	=	1172
6020	=	1521
6030	=	964
6040	=	814
6050	=	171
6060	=	885
6070	=	169
6080	=	1736
9000	=	2357
20000	=	955
20030	=	117
20050	=	5682
20060	=	5283
20062	=	370
20071	=	393
20072	=	458
20073	=	524
20074	=	460
20075	=	526
20076	=	462
20400	=	998
20410	=	166
21000	=	148
21010	=	4206
21020	=	348
21030	=	272
21040	=	390
21050	=	1288
21060	=	1852
21070	=	2028
21090	=	741
21100	=	869
21110	=	1531
21130	=	1085
21140	=	1753
21150	=	641
22000	=	528
23000	=	1376
23010	=	542
30000	=	1404
31000	=	3877
31001	=	3575
31002	=	3518
31003	=	1496
TOTAL	=	68830

RATMAZE



CLASSIFICATION: Evasion/Strategy

In this game, you must move around the maze, dodging everything you can. You must find the compass, which is hidden somewhere within the walls of the ratmaze. You must carefully travel through moving fences, dodge the flying balls and the mines that they lay. You must also avoid the deadly walls or else you will be destroyed. To move through the maze use the keys:

Q=UP
Z=DOWN
I=LEFT
P=RIGHT

any other key stops you from moving

PROGRAMMING SUGGESTIONS

Increase the number of objects you must find to complete the game. Make the objects which are flying round the screen more intelligent and more deadly.

Program Variables

A,I	Dummy variables
O	Character under your program
P	Your position in the maze
SCORE	Your score for the game

Program Structure

3 -	95	Initialize the system
1ØØ -	15Ø	Call machine program
1ØØØ -	11ØØ	Restart game
2ØØØ -	2Ø4Ø	Give bonus points

Listing

Initialize the system

```
3       GRAPHICS 18:? #6:? #6:? #6:? #6:? #6:? #6:"......WAIT!!
        !!"
9       POKE 203,4:POKE 204,80:POKE 205,64:POKE 206,156:POKE 16
        96,0:POKE 1697,80
10      FOR I=20000 TO 20479:READ A:POKE I,A:NEXT I
11      DATA 104,165,245,72,165,246,72,169,164,133,245,169,6,13
        3,246,169,0,133,206,169,80
12      DATA 133,209,160,0,162,8,169,0,133,208,169,83,145,208,2
        30,208,208,248,177,245,41
13      DATA 127,24,105,6,16,2,169,6,133,208,169,8,133,207,169,
        0,145,208,198,208,198
14      DATA 207,208,246,165,208,24,105,125,133,208,169,8,133,2
        07,169,0,145,208,230,208,198
15      DATA 207,208,246,177,245,230,245,74,113,245,198,245,145
        ,245,230,245,230,245,165,209,24
16      DATA 105,8,133,209,202,208,171,104,133,246,104,133,245,
        96
20      DATA 104,160,0,169,0,133,206,169,80,133,207,169,0,145,2
        08,230,208,145,202,165,208,24,105,7
21      DATA 133,208,208,245,165,209,24,105,1,133,209,201,144,2
        08,225,169,0,133,208,169,80,133,209
22      DATA 169,0,145,208,230,208,208,248,74,169,4,101,209,133
        ,209,201,144,208,237,96
23      DATA 104,165,245,72,165,246,72,169,0,133,206,169,6,133,
        207,162,32,160,0,177
24      DATA 206,133,245,160,1,177,206,133,246,160,2,177,206,16
        0,0,145,245,160,3,177
25      DATA 206,24,101,245,133,245,160,0,145,206,169,0,101,246
        ,201,145,208,2,169,80
26      DATA 133,246,160,1,145,206,160,0,177,245,160,2,145,206,
        160,4,177,206,160,0
27      DATA 145,245,169,5,24,101,206,133,206,202,208,191,104,1
        33,246,104,133,245,96
28      DATA 104,165,0,133,245,169,80,133,246,162,64
29      DATA 160,0,169,128,145,245,200,208,249,230,246
30      DATA 202,208,242,96
31      DATA 104,173,242,2,201,47,240,13,201,23,240,36,201,13,2
        40,59,201,10,240,66,96,165,203,201,128,176,7,165,204
32      DATA 201,81,176,1,96,56,165,203,233,128,133,203,165,204
        ,233,0,133,204,96,165,203,201,128,144,7,165,204,201,131
33      DATA 208,1,96,24,165,203,105,128,133,203,165,204,105,0,
        133,204,96,165,203,41,127,201,0,240,2,198,203,96
34      DATA 165,203,41,127,201,88,176,2,230,203,96
35      DATA 104,165,203,72,165,204,72,165,205,72,165,206,72
36      DATA 169,20,133,207,162,40,160,0,177,203,145,205,200,20
        2,208,248,24,165,203,105,128,133,203,165,204
37      DATA 105,0,133,204,24,165,205,105,40,133,205,165,206,10
        5,0,133,206,198,207,208,214
38      DATA 104,133,206,104,133,205,104,133,204,104,133,203,96
```

```
40      A=USR(20285):A=USR(20119)
50      FOR T=1700 TO 1735 STEP 2:POKE T.64:A=INT(RND(1)*5)+1:I
        F A<4 THEN POKE T+1.256-A:NEXT T:GOTO 60
53      POKE T+1.A-3:NEXT T
60      FOR T=1536 TO 1695 STEP 5:POKE T.INT(RND(1)*100)+14:POK
        E T+1.INT(RND(1)*40)+96
65      POKE T+2.PEEK(PEEK(T)+PEEK(T+1)*256)
70      A=INT(RND(1)*5):IF INT(RND(1)*6)=1 THEN POKE T+3.1:GOTO
         80
75      POKE T+3.125+A
80      POKE T+4.84:NEXT T:SCORE=0
90      GRAPHICS 0:SETCOLOR 2.13.0:SETCOLOR 1.13.7:POSITION 16.
        22:? "SCORE.....":SCORE:SETCOLOR 4.4.4
95      POKE 752.0
```

Call machine program

```
100     A=USR(20186)
103     A=USR(20000)
105     A=USR(20311):P=PEEK(203)+256*PEEK(204)+1428:O=PEEK(P):P
        OKE P.3
110     A=USR(20408)
115     IF O<>0 THEN GOTO 1000
120     POKE P.0
140     POKE 33748.INT(RND(1)*4)+92
145     SCORE=SCORE+1:POSITION 26.22:PRINT SCORE
150     GOTO 100
```

Restart game

```
1000    ? CHR$(125)
1010    IF P=33748 THEN GOTO 2000
1020    GRAPHICS 18:? #6:? #6:? #6:? #6:"▲▲▲▲▲GAME▲OVER!"
1030    FOR T=0 TO 400:NEXT T
1040    GRAPHICS 0
1050    POSITION 15.10:? "HIT▲ANY▲KEY"
1060    POSITION 15.12:? "FOR▲ANOTHER"
1070    POSITION 18.14:? "GAME"
1080    POKE 754.0
1090    IF PEEK(754)<>0 THEN RUN
1100    GOTO 1090
```

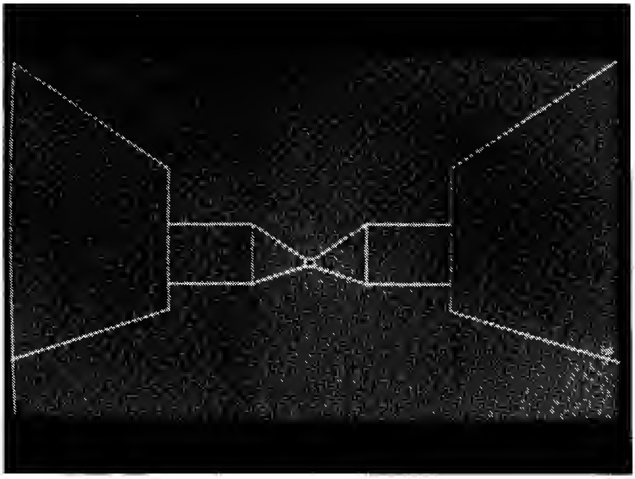
Give bonus points

```
2000    GRAPHICS 18:? #6:? #6:? #6:? #6:? #6:"▲▲▲▲▲WELL▲DONE!":
        ? #6:? #6:"▲▲▲BONUS▲1000▲PTS.":SCORE=SCORE+1000
2010    POKE 203.4:POKE 204.80
2020    POKE 754.0
2030    IF PEEK(754) THEN GOTO 90
2040    GOTO 2030
```

ChexSum Tables

3	=	2208	33	=	4963	140	=	1095
9	=	2488	34	=	2032	145	=	1064
10	=	1280	35	=	2479	150	=	112
11	=	3937	36	=	4763	1000	=	343
12	=	3868	37	=	3925	1010	=	577
13	=	3686	38	=	2597	1020	=	2149
14	=	4023	40	=	1186	1030	=	509
15	=	4170	50	=	3697	1040	=	79
16	=	2717	53	=	749	1050	=	1159
20	=	4343	60	=	2987	1060	=	1195
21	=	4352	65	=	1444	1070	=	676
22	=	3765	70	=	2369	1080	=	255
23	=	3623	75	=	600	1090	=	506
24	=	3655	80	=	1014	1100	=	271
25	=	3039	90	=	2643	2000	=	4468
26	=	3544	95	=	253	2010	=	636
27	=	3655	100	=	632	2020	=	255
28	=	2089	103	=	497	2030	=	656
29	=	2183	105	=	2741	2040	=	191
30	=	853	110	=	509			
31	=	5147	115	=	362			
32	=	5312	120	=	334	TOTAL	=	133509

2D MAZE



CLASSIFICATION: Skill

You are placed randomly within a maze and must work your way through to the end.The end of the maze is a flashing wall of color. Move forward using the joystick.

PROGRAMMING SUGGESTIONS

Put a time limit on solving the maze. Introduce random teleporters which change your position and orientation; once triggered, they disappear. Increase the size of the maze. Have nasty things chase you! Add secret, invisible passageways that change your position.

Program Variables

MZ()	Maze array
J	Current junction
D	Actual junction
MAND$	Machine code for AND instruction
MOR$	Machine code for OR instruction

Program Structure

1∅ - 11∅	Initialize the game
12∅ - 14∅	Scan the keyboard
15∅ - 18∅	Move the player
19∅ - 2∅∅	Rotate left or right
21∅ - 44∅	Draw the players view

Listing

Initialize the game

```
10      GOTO 3000
15      PRINT CHR$(125);"WAIT":DX=9:DY=9:XF=5:YF=9
20      DIM MZ(DX,DY):COLOR 1
30      RESTORE 50
40      FOR I=0 TO DY:FOR J=0 TO DX:READ A:MZ(J,I)=A:NEXT J:NEX
        T I
50      DATA 15,3,4,7,5,7,5,5,15,5,11,14,5,13,5,13,5,3,10,6,14,
        11,6,5,5,5,7,11,8,10
60      DATA 10,8,10,6,3,6,11,12,7,9,12,5,9,8,6,12,15,5,13,3,5,
        5,3,6,15,3,10,2,6,13
70      DATA 7,5,9,10,10,12,9,10,12,5,14,7,5,9,12,5,5,15,5,1,11
        ,14,5,7,7,5,3,10,4,5
80      DATA 11,8,4,9,8,4,9,12,7,5
85      GOTO 110
```

Call MAND and MOR

```
90      LL=USR(ADR(MAND$),(X1*2),15):LL=LL+INT(USR(ADR(MAND$),X
        1,8)/8):RETURN
100     RR=INT(X1/2)+(USR(ADR(MAND$),X1,1)*8):RETURN
```

Scan the keyboard

```
110     X=INT(RND(0)*6+2):Y=INT(RND(0)*5):D=2^INT(RND(0)*4):GRA
        PHICS 8:GOSUB 210
120     B=STRIG(1):A=STICK(1):IF A=15 AND B=1 THEN 120
130     IF A=11 THEN X1=D:GOSUB 100:D=RR:GOSUB 210:GOTO 120
140     IF A=7 THEN X1=D:GOSUB 90:D=LL:GOSUB 210:GOTO 120
150     IF USR(ADR(MAND$),D,MZ(X,Y))=1 THEN X=X-1:IF X<0 THEN X
        =DX
160     IF USR(ADR(MAND$),D,MZ(X,Y))=2 THEN Y=Y+1:IF Y>DY THEN
        Y=0
170     IF USR(ADR(MAND$),D,MZ(X,Y))=4 THEN X=X+1:IF X>DX THEN
        X=0
180     IF USR(ADR(MAND$),D,MZ(X,Y))=8 THEN Y=Y-1:IF Y<0 THEN Y
        =DY
190     GOSUB 210:IF X=XF AND Y=YF THEN GRAPHICS 0:END
200     GOTO 120
```

Draw the players view

```
210   GRAPHICS 8:XN=X:YN=Y:IF USR(ADR(MAND$),D,MZ(X.Y))=0 THE
      N RETURN
220   IF USR(ADR(MAND$),D,MZ(X,Y))=1 THEN XN=X-1:IF XN<0 THEN
       XN=DX
230   IF USR(ADR(MAND$),D,MZ(X,Y))=2 THEN YN=Y+1:IF YN>DY THE
      N YN=0
240   IF USR(ADR(MAND$),D,MZ(X,Y))=4 THEN XN=X+1:IF XN>DX THE
      N XN=0
250   IF USR(ADR(MAND$),D,MZ(X,Y))=8 THEN YN=Y-1:IF YN<0 THEN
       YN=DY
260   PLOT 0,0:DRAWTO 87,57:PLOT 0,159:DRAWTO 87,130:PLOT 319
      ,0:DRAWTO 232,57:PLOT 319,159:DRAWTO 232,130
270   IF USR(ADR(MAND$),MZ(XN.YN),D)=0 THEN 300
280   PLOT 157,103:DRAWTO 162,103:DRAWTO 162,107:DRAWTO 157,1
      07:DRAWTO 157,103
281   PLOT 157,103:DRAWTO 130,85:PLOT 162,103:DRAWTO 189,85
290   PLOT 157,107:DRAWTO 130,116:PLOT 162,107:DRAWTO 189,116
      :GOTO 310
300   PLOT 130,85:DRAWTO 189,85:PLOT 130,116:DRAWTO 189,116
310   X1=D:GOSUB 100:IF USR(ADR(MAND$),MZ(XN,YN),RR)=0 THEN 3
      40
320   PLOT 87,57:DRAWTO 87,130:PLOT 130,85:DRAWTO 87,85:PLOT
      130,116:DRAWTO 87,116
330   IF USR(ADR(MAND$),MZ(XN,YN),D)>0 THEN PLOT 130,85:DRAWT
      O 130,116
340   X1=D:GOSUB 90:IF USR(ADR(MAND$),MZ(XN,YN),LL)=0 THEN 37
      0
350   PLOT 232,57:DRAWTO 232,130:PLOT 189,85:DRAWTO 232,85:PL
      OT 189,116:DRAWTO 232,116
360   IF USR(ADR(MAND$),MZ(XN,YN),D)>0 THEN PLOT 189,85:DRAWT
      O 189,116
370   X1=D:GOSUB 90:IF USR(ADR(MAND$),MZ(XN,YN),LL)>0 THEN 40
      0
380   PLOT 232,57:DRAWTO 189,85:PLOT 232,130:DRAWTO 189,116
390   IF USR(ADR(MAND$),MZ(XN,YN),D)=0 THEN PLOT 189,85:DRAWT
      O 189,116
400   X1=D:GOSUB 100:IF USR(ADR(MAND$),MZ(XN,YN),RR)>0 THEN 4
      30
410   PLOT 87,57:DRAWTO 130,85:PLOT 87,130:DRAWTO 130,116
420   IF USR(ADR(MAND$),MZ(XN,YN),D)=0 THEN PLOT 130,85:DRAWT
      O 130,116
430   IF XN=XF AND YN=YF THEN GRAPHICS 0:PRINT "HOME"
440   RETURN
```

Data for MAND and MOR

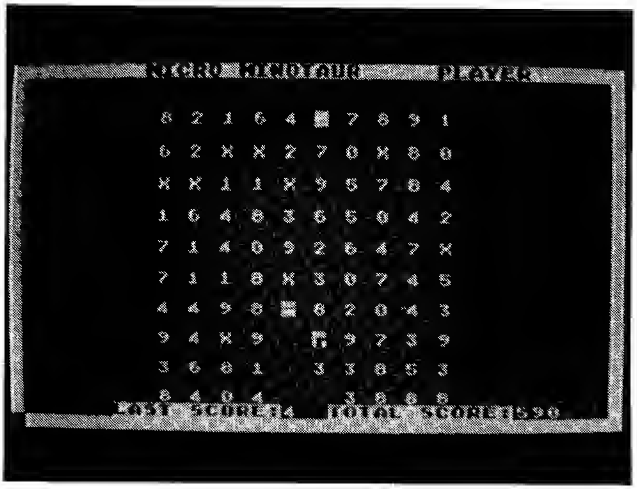
```
3000  DATA 104,104,133,213,104,133,212
3010  DATA 104,37,213,133,213,104,37,212,133,212,96
3020  RESTORE 3000:DIM MAND$(18),MOR$(18)
3030  FOR I=1 TO 18:READ A:MAND$(I,I)=CHR$(A):NEXT I
3040  MOR$=MAND$:MOR$(9,9)=CHR$(5):MOR$(14 14)=CHR$(5)
```

```
3050  REM A=USR(ADR(MAND$),X,Y) . A=X AND Y
3060  REM A=USR(ADR(MOR$),X,Y) .A= X OR Y
3070  GOTO 15
```

ChexSum Tables

10	=	159	180	=	2752	360	=	2425
15	=	2234	190	=	1027	370	=	2220
20	=	716	200	=	144	380	=	1809
30	=	215	210	=	2554	390	=	2426
40	=	2293	220	=	2752	400	=	2129
50	=	3539	230	=	2752	410	=	1795
60	=	3539	240	=	2749	420	=	2248
70	=	3539	250	=	2764	430	=	1196
80	=	1187	260	=	3203	440	=	58
85	=	128	270	=	1500	3000	=	1468
90	=	3037	280	=	1968	3010	=	2117
100	=	1869	281	=	1785	3020	=	972
110	=	3143	290	=	1788	3030	=	1859
120	=	1874	300	=	1823	3040	=	2233
130	=	1675	310	=	2145	3070	=	131
140	=	1804	320	=	2905			
150	=	2740	330	=	2247			
160	=	2740	340	=	2332	TOTAL	=	106190
170	=	2737	350	=	2755			

MINOTAUR



CLASSIFICATION: Arcade

The objective of this game is to guess a number in the range of Ø to 99. You do it by moving a piece around a board of numbers. As you pass over a number, it is removed from the board and added to your score. If you pass over an X, a clue appears at the top of the board for a short time. If you pass over a question mark ,a random number is added to your score. If you pass over a number greater than six as you move around the board, you are pursed by a minotaur. If he captures you, you're dead. Remember, once you pass over a number it is removed from the board and you cannot pass over spaces. If you become encircled by spaces press the fire button to escape. When you have guessed the number, move your piece to the white cursor.

PROGRAMMING SUGGESTIONS

Add different pieces to the board, such as bombs and mines. Place tempory barriers in the path of both the player and the minotaur.

Program Variables

SC	Screen memory
H$	Characters on the screen
R	Row co-ordinate of player's piece
C	Column co-ordinate of player's piece
PO	Player's piece position
PE	Player's piece's previous position
BE	Start of matrix on screen
C1	Column position of minotaur
R1	Row position of minotaur
MA	Minotaur's screen position

Program Structure

1Ø - 9Ø	Initialize the game and variables
1ØØ - 4ØØ	Draw the screen and generate clues
4ØØ - 55Ø	Main loop
56Ø - 75Ø	Move your player round the screen
85Ø - 91Ø	Move the minotaur
92Ø - 1Ø7Ø	Print messagesy

Listing

```
10    REM MICRO MINOTAUR
20    CLR
21    DIM RR$(24),CC$(40),CL$(201),H$(11),NU$(2);A$(5),WA$(40
      ),VT$(5)
23    POKE 82,0:PRINT CHR$(125);
24    SP=0:REM SET SPACE CHARACTER
25    IN=128:REM SET INVERSE SPACE
26    MI=13:REM SET THE MINOTAUR CHARACTER
27    XX=56:REM SET CLUE CHARACTER TO X
30    PRINT CHR$(125);
40    SC=40000:CO=40960:C=0:R=0:PO=SC+(R*40)+C:BE=SC+130
60    FOR I=1 TO 24:RR$(I,I)="↓":NEXT I
70    FOR I=1 TO 40:CC$(I,I)="→":NEXT I
80    FOR I=1 TO 200:CL$(I,I)="▲":NEXT I
81    FOR I=1 TO 34:WA$(I,I)="▲":NEXT I
90    J=1:FOR I=17 TO 25:H$(J,J)=CHR$(I):J=J+1:NEXT I:H$(10,1
      0)=CHR$(31):H$(11,11)=CHR$(56)
100   FOR I=SC TO SC+39:POKE I,IN:NEXT I
110   FOR I=SC+(23*40)+1 TO SC+(23*40)+38:POKE I,IN:NEXT I
120   FOR I=SC+40 TO SC+(23*39) STEP 40:POKE I,IN:NEXT I
130   FOR I=SC+39 TO SC+(23*40)+39 STEP 40:POKE I,IN:NEXT I
140   POSITION 0,0:PRINT "             MICRO MINOTAUR";"
              PLAYER        ";
150   FOR I=SC+130 TO SC+850 STEP 80
160   FOR J=I TO I+18 STEP 2
170   Q=INT(RND(1)*12):IF Q=0 THEN 170
180   A=ASC(H$(Q,Q))
190   POKE J,A:NEXT J:NEXT I
200   NU=INT(RND(1)*100):IF NU=0 THEN 200
210   NU$=STR$(NU):RA=INT(RND(1)*3):IF RA=0 THEN GOTO 210
220   IF NU<10 THEN NU$(2,2)=NU$(1,1):NU$(1,1)="0"
230   IF RA=1 THEN CL$(1,19)="FIRST▲DIGIT▲EQUALS▲":CL$(20,20)
      =NU$(2,2)
240   IF RA=2 THEN CL$(1,19)="SECOND▲DIGIT▲EQUAL▲":CL$(20,20)
      =NU$(1,1)
250   CN=1:FOR I=2 TO NU-1
260   A=NU/I:B=INT(A):IF A<>B THEN 290
270   IF CN=7 THEN 300
280   CL$(((CN*20)+1),(CN*20)+17)="FACTOR▲OF▲NUMBER▲":CL$((CN
      *20)+19,(CN*20)+20)=STR$(A):CN=CN+1
290   NEXT I
300   IF NU/2=INT(NU/2) THEN CL$(((CN*20)+1),(CN*20)+18)="THE
      ▲NUMBER▲IS▲EVEN"
310   IF NU/2<>INT(NU/2) THEN CL$(((CN*20)+1),(CN*20)+17)="TH
      E▲NUMBER▲IS▲ODD"
320   GB=VAL(NU$(1,1)):FOR I=2 TO 9:A=GB/I:IF A=INT(GB/I) THE
      N GOSUB 1060:GOTO 340
330   NEXT I
340   GB=VAL(NU$(2,2)):FOR I=2 TO 9:A=GB/I:IF A=INT(GB/I) THE
      N GOSUB 1070:GOTO 360
350   NEXT I
360   SD=VAL(NU$(2,2)):IF SD/2=INT(SD/2) THEN CL$((7*20)+1,(7
      *20)+19)="FIRST▲DIGIT▲IS▲EVEN"
370   IF SD/2<>INT(SD/2) THEN CL$((8*20)+1,(8*20)+18)="FIRST▲
      DIGIT▲IS▲ODD"
```

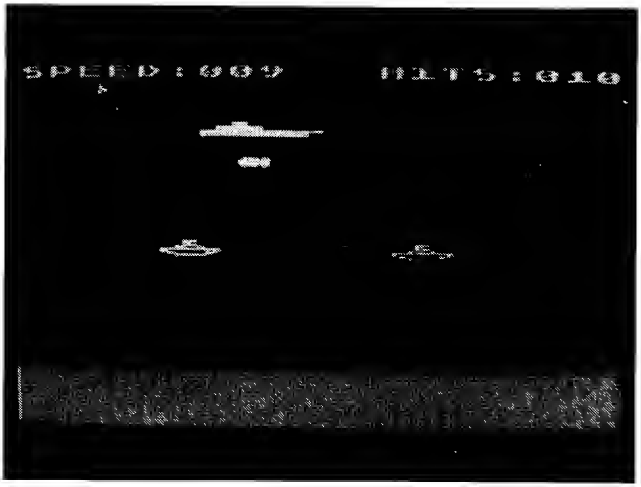
```
380    SD=VAL(NU$(2,2)):IF SD/2=INT(SD/2) THEN CL$((8*20)+1,(8
       *20)+20)="SECOND▲DIGIT▲IS▲EVEN"
390    IF SD/2<>INT(SD/2) THEN CL$((8*20)+1,(8*20)+19)="SECOND
       ▲DIGIT▲IS▲ODD"
400    FOR I=1 TO 9:IF I*I=NU THEN CL$((20*9)+1,(20*9)+19)="PR
       ODUCT▲OF▲A▲SQUARE"
410    NEXT I
420    HO=BE+10:POKE HO,IN
430    C1=6:R1=6:MA=BE+(R1*40)+C1:VE=PEEK(MA):POKE MA,MI
440    C=10:R=18:PO=BE+(R*40)+C:VA=PEEK(PO):POKE PO,209
450    B=STRIG(1):A=STICK(1):IF A=15 AND B=1 THEN 550
460    IF A=14 THEN GOSUB 560
470    IF A=13 THEN GOSUB 620
480    IF A=11 THEN GOSUB 680
490    IF A=7 THEN GOSUB 740
500    IF B=0 THEN GOTO 1040
510    GOSUB 850
520    POSITION 0,0:PRINT "↓↓→→";WA$
530    TT=TT+CU
540    POSITION 0.0:PRINT RR$(1,22);CC$(1,7);"LAST SCORE:";
       CU;"▲▲TOTAL SCORE:";TT
550    CU=0:POKE MA,141:GOTO 450
560    IF R=0 THEN RETURN
570    R=R-2:PE=PO:PO=BE+(R*40)+C:DA=PEEK(PO):IF DA=SP THEN R=
       R+2:PO=BE+(R*40)+C:RETURN
580    IF DA=MI THEN GOTO 920
590    GOSUB 800
600    POKE PE,VA:FL=PEEK(PE):CU=FL-16:POKE PE,SP:VA=PEEK(PO)
610    POKE PO,209:RETURN
620    IF R=18 THEN RETURN
630    R=R+2:PE=PO:PO=BE+(R*40)+C:DA=PEEK(PO):IF DA=SP THEN R=
       R-2:PO=BE+(R*40)+C:RETURN
640    IF DA=MI THEN GOTO 920
650    GOSUB 800
660    POKE PE,VA:FL=PEEK(PE):CU=FL-16:POKE PE,SP
670    VA=PEEK(PO):POKE PO,209:RETURN
680    IF C=0 THEN RETURN
690    C=C-2:PE=PO:PO=BE+(R*40)+C:DA=PEEK(PO):IF DA=SP THEN C=
       C+2:PO=BE+(R*40)+C:RETURN
700    IF DA=MI THEN GOTO 920
710    GOSUB 800
720    POKE PE,VA:FL=PEEK(PE):CU=FL-16:POKE PE,SP
730    VA=PEEK(PO):POKE PO,209:RETURN
740    IF C=18 THEN RETURN
750    C=C+2:PE=PO:PO=BE+(R*40)+C:DA=PEEK(PO):IF DA=SP THEN C=
       C-2:PO=BE+(R*40)+C:RETURN
760    IF DA=MI THEN GOTO 920
770    GOSUB 800
780    POKE PE,VA:FL=PEEK(PE):CU=FL-16:POKE PE,SP
790    VA=PEEK(PO):POKE PO,209:RETURN
800    IF DA=63 THEN CU=INT(RND(1)*10)
810    FU=INT(RND(9)*10)
820    DI=(FU*20)+1:IF DA=XX THEN POSITION 0,0:PRINT CC$(1,5);
       RR$(1,2);CL$(DI,DI+19);:GOSUB 1050
830    IF DA=IN THEN GOSUB 1000
840    RETURN
850    IF CU<6 THEN RETURN
860    IF C1>C THEN C1=C1-2
```

```
870    IF C1<C THEN C1=C1+2
880    IF R1>R THEN R1=R1-2
890    IF R1<R THEN R1=R1+2
900    POKE MA,VE:MA=BE+(R1*40)+C1:IF PEEK(MA)=209 THEN GOSUB
       920:STOP
910    VE=PEEK(MA):POKE MA,MI:RETURN
920    PRINT CHR$(125);:PRINT RR$(1,10);"THE▲MINOTAUR▲HAS▲EATE
       N▲YOU"
930    POSITION 0,0:PRINT RR$(1,13);"THE▲NUMBER▲WAS▲";NU
940    PRINT :PRINT :PRINT
950    PRINT "DO▲YOU▲WANT▲ANOTHER▲GAME(Y/N):";
960    INPUT A$:IF A$="" THEN PRINT "↑";:GOTO 960
970    IF A$="Y" THEN GOTO 20
980    IF A$="N" THEN END
990    GOTO 960
1000   PRINT CHR$(125):PRINT RR$(1,2);CC$(1,3);"WHAT▲IS▲THE▲NU
       MBER";:INPUT VT$
1005   VT=VAL(VT$)
1010   IF VT<>NU THEN PRINT "WRONG▲THE▲NUMBER▲WAS▲";NU:GOTO 94
       0
1020   PRINT "CONGRATULATIONS▲YOU▲HAVE▲BEATEN▲MINOTAUR"
1030   GOTO 940
1040   PRINT CHR$(125);:GOTO 930
1050   FOR I=1 TO 300:NEXT I:RETURN
1060   CL$((6*20)+1,(6*20)+19)="FACTOR▲SECOND▲DIGIT":CL$((6*20
       )+20,(6*20)+20)=STR$(I):RETURN
1070   CL$((5*20)+1,(5*20)+18)="FACTOR▲FIRST▲DIGIT":CL$((5*20)
       +20,(5*20)+20)=STR$(I):RETURN
```

ChexSum Tables

```
  2Ø  =  4Ø              35Ø  =  177             74Ø  =  388
  21  =  2865            36Ø  =  4529            75Ø  =  4994
  23  =  682             37Ø  =  3465            76Ø  =  542
  24  =  1778            38Ø  =  4592            77Ø  =  121
  25  =  177Ø            39Ø  =  352Ø            78Ø  =  2Ø6Ø
  26  =  2386            4ØØ  =  3758            79Ø  =  1ØØ8
  27  =  2183            41Ø  =  177             8ØØ  =  13ØØ
  3Ø  =  356             42Ø  =  938             81Ø  =  861
  4Ø  =  3214            43Ø  =  2968            82Ø  =  3579
  6Ø  =  1434            44Ø  =  285Ø            83Ø  =  518
  7Ø  =  1465            45Ø  =  1974            84Ø  =  58
  8Ø  =  14Ø6            46Ø  =  554             85Ø  =  389
  81  =  1459            47Ø  =  49Ø             86Ø  =  942
  9Ø  =  4786            48Ø  =  584             87Ø  =  94Ø
 1ØØ  =  1279            49Ø  =  511             88Ø  =  946
 11Ø  =  2312            5ØØ  =  451             89Ø  =  944
 12Ø  =  1914            51Ø  =  2Ø1             9ØØ  =  235Ø
 13Ø  =  21Ø2            52Ø  =  491             91Ø  =  1Ø73
 14Ø  =  7439            53Ø  =  645             92Ø  =  2811
 15Ø  =  1127            54Ø  =  632Ø            93Ø  =  1925
 16Ø  =  784             55Ø  =  928             94Ø  =  179
 17Ø  =  1327            56Ø  =  3Ø1             95Ø  =  2126
 18Ø  =  1Ø22            57Ø  =  4998            96Ø  =  788
 19Ø  =  748             58Ø  =  542             97Ø  =  487
 2ØØ  =  12Ø4            59Ø  =  121             98Ø  =  37Ø
 21Ø  =  1897            6ØØ  =  27Ø3            99Ø  =  116
 22Ø  =  21ØØ            61Ø  =  379            1ØØØ  =  2936
 23Ø  =  3477            62Ø  =  389            1ØØ5  =  542
 24Ø  =  3445            63Ø  =  4998           1Ø1Ø  =  2552
 25Ø  =  98Ø             64Ø  =  542            1Ø2Ø  =  1985
 26Ø  =  1873            65Ø  =  121            1Ø3Ø  =  184
 27Ø  =  4Ø9             66Ø  =  2Ø6Ø           1Ø4Ø  =  549
 28Ø  =  5274            67Ø  =  1ØØ8           1Ø5Ø  =  695
 29Ø  =  177             68Ø  =  3ØØ            1Ø6Ø  =  4657
 3ØØ  =  3676            69Ø  =  4954           1Ø7Ø  =  4591
 31Ø  =  3582            7ØØ  =  542
 32Ø  =  3386            71Ø  =  121
 33Ø  =  177             72Ø  =  2Ø6Ø          TOTAL  =  159733
 34Ø  =  3436            73Ø  =  1ØØ8
```

BATTLESHIP



CLASSIFICATION: Arcade

You are the commander of a battleship and must destroy enemy submarines. You destroy them by dropping depth charges on them. Each time one of them escapes the escape counter is incremented. Each time you hit one, the hit counter is incremented.

PROGRAMMING SUGGESTIONS

Add different kinds of submarines to your fleet of enemies and give them varying degrees of strength. Fit the submarines with different kinds of weapons, for example some sea to air missiles. Use the joystick to move your battleship left and right and press the fire button to launch a depth charge.

Program Variables

I	General purpose variable
X2	X position of battleship
Y2	Y Position of battleship
X1	X position of submarine 1
Y1	Y position of submarine 1
X3	X position of submarine 2
Y3	Y position of submarine 2
X4	X position of depth charge
Y4	Y position of depth charge

Program Structure

2 -	85	Clear out memory and read in data
1ØØ -	13Ø	Data for players
2ØØ -	35Ø	Set up players
1ØØØ -	1Ø41	Main loop
2ØØØ -	2999	Initialize game
3ØØØ -	3599	Move the battleship
4ØØØ -	4999	Move the submarines
5ØØØ -	5999	Move the mine
6ØØØ -	6999	Update the score
7ØØØ -	7Ø3Ø	Check for collision
9ØØØ -	9Ø9Ø	Data for machine language program

Listing

```
2       CLR
6       FOR I=30720 TO 30798:READ A:POKE I,A:NEXT I
7       FOR I=33792 TO 33792+1023:POKE I,0:NEXT I
9       FOR I=28672 TO 29050:READ A:POKE I,A:NEXT I
10      POKE 106,128
20      PM=PEEK(106):PMBASE=PM*256
30      GRAPHICS 1
40      POKE 559,62
50      POKE 53277,3
60      POKE 54279,PM
70      POKE 53256,2
80      POKE 704,87:POKE 705,77:POKE 706,77
85      POKE 707,77
100     DATA 24,16,24,36,255,129,66,60,0,0,0,0,0,0,0,0,0,0,0,0
110     DATA 0,0,32,32,112,112,255,254,254,0,0,0,0,0,0,0,0,0,0,
        0
120     DATA 24,16,24,36,255,129,66,60,0,0,0,0,0,0,0,0,0,0,0,0
130     DATA 0,0,123,255,255,123,0,0,0,0,0,0,0,0,0,0,0,0,0,0
200     POKE 53256,1
210     POKE 53257,3
220     POKE 53258,1
230     POKE 53259,2
300     POKE 704,125
310     POKE 705,31
320     POKE 706,118
340     POKE 707,175
350     A=USR(28672,X1,Y1,X2,Y2,X3,Y3,X4,Y4)
1000    GOSUB 2000
1010    GOSUB 3000:REM BATTLESHIP
1020    GOSUB 4000:REM SUBMARINES
1025    GOSUB 5000:REM CHARGE
1027    GOSUB 6000:REM UPDATE
1030    A=USR(28672,X1,Y1,X2,Y2,X3,Y3,X4,Y4)
1040    GOSUB 7000:REM CHECK
1041    GOTO 1010
2000    POSITION 0,0
2020    X2=100:Y2=28:Y4=220:POKE 53278,0
2025    GOSUB 4500:Y1=Y:GOSUB 4500:Y3=Y
2999    RETURN
3000    REM BATTLESHIP
3005    A=STICK(1):POKE 53278,0
3010    IF A=11 THEN GOSUB 3100:RETURN
3020    IF A=7 THEN GOSUB 3200:RETURN
3030    IF STRIG(1)=0 THEN GOSUB 3500:RETURN
3040    RETURN
3100    REM LEFT
3110    IF X2=0 THEN RETURN
3120    X2=X2-4:RETURN
3200    REM RIGHT
3210    IF X2=128 THEN RETURN
3220    X2=X2+4:RETURN
3500    REM DROP DEPTH CHARGE
3501    IF IN THEN RETURN
3505    X4=X2:Y4=Y2+8:IN=1
3599    RETURN
4000    REM SUBMARINES
```

```
4005  GOSUB 4100:GOSUB 4200:RETURN
4100  REM MOVE SUBMARINE 1
4105  IF X1>180 THEN GOSUB 4500:ES=ES+1:Y1=Y:X1=0:RETURN
4110  X1=X1+(RND(1)*4):RETURN
4199  RETURN
4200  REM MOVE SUBMARINE 2
4205  IF X3>180 THEN GOSUB 4500:ES=ES+1:Y3=Y:X3=0:RETURN
4210  X3=X3+(RND(1)*4):RETURN
4299  RETURN
4500  Y=RND(9)*150:IF Y>150 THEN 4500
4505  IF Y<60 THEN 4500
4510  RETURN
4999  RETURN
5000  REM
5005  IF IN=0 THEN RETURN
5010  IF Y4>150 THEN Y4=220:IN=0:RETURN
5015  Y4=Y4+4:RETURN
5999  RETURN
6000  REM
6005  POSITION 0,0:PRINT #6;"ESCAPED:";ES;" HITS:";HI;"  ";
6999  RETURN
7000  REM
7005  A=PEEK(53263):IF A=0 THEN RETURN
7010  IF A=1 THEN GOSUB 7100:RETURN
7015  IF A=4 THEN GOSUB 7200:RETURN
7020  IF A=5 THEN GOSUB 7100:GOSUB 7200:RETURN
7030  RETURN
7100  HI=HI+1:X1=0:GOSUB 4500:Y1=Y:IN=0:POKE 53278,0:Y4=220:R
      ETURN
7200  HI=HI+1:X3=0:GOSUB 4500:Y3=Y:IN=0:POKE 53278,0:Y4=220:R
      ETURN
7999  RETURN
9000  DATA 104,104,104,141,61,113,104,104,141,60,113,104,104,
      141,75,113,104,104,141,74
9005  DATA 113,104,104,141,89,113,104,104,141,88,113,104,104,
      141,103,113,104,104,141,102
9010  DATA 113,32,45,112,96,120,32,8,113,160,14,162,0,189,53,
      113,149,176,232,136
9015  DATA 208,247,32,170,112,160,14,162,0,181,176,157,53,113
      ,232,136,208,247,160,14
9020  DATA 162,0,189,67,113,149,176,232,136,208,247,32,170,11
      2,160,14,162,0,181,176
9025  DATA 157,67,113,232,136,208,247,160,14,162,0,189,81,113
      ,149,176,232,136,208,247
9030  DATA 32,170,112,160,14,162,0,181,176,157,81,113,232,136
      ,208,247,160,14,162,0
9035  DATA 189,95,113,149,176,232,136,208,247,32,170,112,160,
      14,162,0,181,176,157,95
9040  DATA 113,232,136,208,247,32,22,113,88,96,165,183,197,18
      2,240,68,160,0,165,184
9045  DATA 24,105,46,145,176,169,32,24,101,182,168,166,185,16
      9,0,145,178,200,202,16
9050  DATA 250,169,32,24,101,183,141,116,113,162,0,142,109,11
      3,166,185,172,109,113,177
9055  DATA 180,238,109,113,172,116,113,145,178,238,116,113,20
      2,16,237,165,183,133,182,165
9060  DATA 184,133,189,96,165,184,197,189,208,182,96,173,112,
      113,41,15,170,189,36,113
```

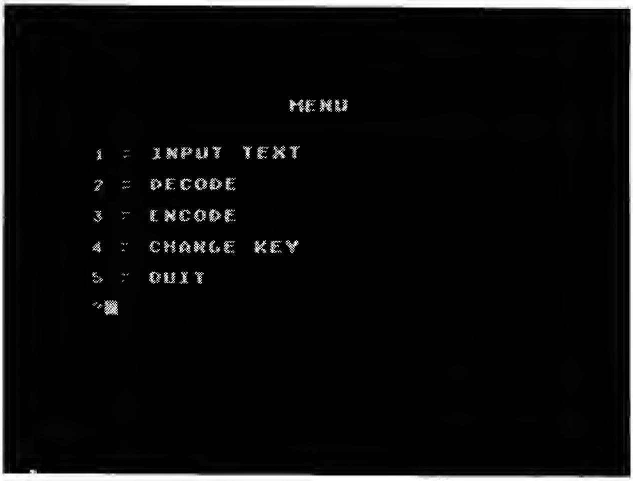
```
9Ø65   DATA 238,112,113,96,16Ø,14,162,Ø,181,176,157,117,113,23
       2,136,2Ø8,247,96,16Ø,14
9Ø7Ø   DATA 162,Ø,189,117,113,149,176,232,136,2Ø8,247,96,1,2,3
       ,4,5,1Ø,7,8
9Ø75   DATA 7,8,11,4,2,4,1,4,8,Ø,2Ø8,Ø,132,Ø,12Ø,Ø,Ø,Ø,8,Ø
9Ø8Ø   DATA 16,Ø,Ø,1,2Ø8,Ø,133,2Ø,12Ø,Ø,Ø,Ø,8,Ø,16,Ø,Ø,2,2Ø8,Ø


9Ø85   DATA 134,4Ø,12Ø,Ø,Ø,Ø,8,Ø,16,Ø,Ø,3,2Ø8,Ø,135,6Ø,12Ø,Ø,Ø
       ,Ø
9Ø9Ø   DATA 8,Ø,Ø,Ø,Ø,Ø,Ø,79,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,141,3Ø,2Ø8
```

ChexSum Tables

2 =	4Ø	1Ø4Ø =	749	5999 =	58
6 =	1359	1Ø41 =	143	6ØØ5 =	1864
7 =	1421	2ØØØ =	113	6999 =	58
9 =	1631	2Ø2Ø =	1575	7ØØ5 =	99Ø
1Ø =	277	2Ø25 =	1247	7Ø1Ø =	613
2Ø =	1121	2999 =	58	7Ø15 =	617
3Ø =	144	3ØØ5 =	889	7Ø2Ø =	887
4Ø =	42Ø	3Ø1Ø =	565	7Ø3Ø =	58
5Ø =	4Ø6	3Ø2Ø =	556	71ØØ =	2894
6Ø =	472	3Ø3Ø =	64Ø	72ØØ =	29Ø2
7Ø =	372	3Ø4Ø =	58	7999 =	58
8Ø =	1185	311Ø =	3Ø4	9ØØØ =	38ØØ
85 =	361	312Ø =	6Ø9	9ØØ5 =	39ØØ
1ØØ =	25Ø2	321Ø =	41Ø	9Ø1Ø =	3548
11Ø =	258Ø	322Ø =	6Ø8	9Ø15 =	3747
12Ø =	25Ø2	35Ø1 =	257	9Ø2Ø =	3711
13Ø =	228Ø	35Ø5 =	1368	9Ø25 =	3824
2ØØ =	371	3599 =	58	9Ø3Ø =	3638
21Ø =	374	4ØØ5 =	46Ø	9Ø35 =	3778
22Ø =	373	41Ø5 =	21Ø6	9Ø4Ø =	373Ø
23Ø =	375	411Ø =	993	9Ø45 =	3719
3ØØ =	278	4199 =	58	9Ø5Ø =	3845
31Ø =	289	42Ø5 =	2118	9Ø55 =	4Ø13
32Ø =	267	421Ø =	1ØØ1	9Ø6Ø =	3852
34Ø =	361	4299 =	58	9Ø65 =	376Ø
35Ø =	24Ø7	45ØØ =	1289	9Ø7Ø =	3163
1ØØØ =	145	45Ø5 =	545	9Ø75 =	2355
1Ø1Ø =	1Ø92	451Ø =	58	9Ø8Ø =	2537
1Ø2Ø =	1117	4999 =	58	9Ø85 =	2637
1Ø25 =	794	5ØØ5 =	313	9Ø9Ø =	2191
1Ø27 =	835	5Ø1Ø =	1215		
1Ø3Ø =	24Ø7	5Ø15 =	618		

TOTAL = 1284Ø2

CRYPT



```
                MENU

1 = INPUT TEXT
2 = DECODE
3 = ENCODE
4 = CHANGE KEY
5 = QUIT
?
```

CLASSIFICATION: Passive

This program has a very good software random number generator. This is used instead of the normal rnd(Ø) function because the sequence of numbers generated by this method is repeatable. Changing the seed numbers,which should be prime, will change the numbers produced by the random routine which ,in turn , alters the results of the encode and decode routines. The program is self prompting and the only thing to remember is that the seed numbers should be prime.

PROGRAMMING SUGGESTIONS

It should be possible to make this program work on text files from tape or disk and to work on larger amounts of text.

Program Variables

C	Used in random routine
CODE$	Holds result of encode or decode
FLAG	Flag
H$	List of allowable text characters
KEYA	User key A
KEYB	User key B
LOOP	Loop counter
MAIN$	Holds text
Q	Local
SEEDA	Seed A for random routine
SEEDB	Seed B for random routine
T$	Local string
TEST	Flag for print routine
Y	Local
Z	Local

Program Structure

1∅	Jump to initialization routine
11	Error message
12	Error Message
2∅ - 27	Input and check text
3∅ - 32	Input new keys
1∅∅ - 16∅	Main loop
9∅∅	Set for decode
1∅∅∅	Set for encode
1∅∅5 - 3∅2∅	Encode or decode
4∅∅∅ - 4∅5∅	Random number generator
5∅∅∅	Delay loop
2∅∅∅∅ - 21∅∅∅	Initialization routine
3∅∅∅∅ - 3∅∅4∅	The modulo arithmetic routine
31∅∅∅	The good bye routine

Listing

```
10      GOTO 2ØØØØ
11      ? :? "1▲TO▲5▲ONLY":GOSUB 5ØØØ:GOTO 1ØØ
12      ? :? :? "INVALID▲CHARACTER":GOSUB 5ØØØ:GOTO 2Ø
```

Jump to initialization routine

```
2Ø      FLAG=Ø:? CHR$(125):? "UPPER▲CASE▲ALPHA▲AND▲NUMBERS
        ▲ONLY ":POSITION 2.4:INPUT MAIN$
21      FOR X=1 TO LEN(MAIN$):X$=MAIN$(X.X)
22      IF X$="▲" THEN GOTO 26
23      IF X$>="Ø" AND X$<="9" THEN GOTO 26
24      IF X$>="A" AND X$<="Z" THEN GOTO 26
25      FLAG=1
26      NEXT X:IF FLAG THEN GOTO 12
27      GOTO 1ØØ
```

Input and check text

```
3Ø      ? CHR$(125):? "NOTE▲NUMBERS▲SHOULD▲BE▲PRIME":? :? :?
31      ? "KEY▲A▲=":KEYA:"▲▲▲KEY▲B=":KEYB:? :? "NEW▲VALUE▲FOR
        KEY▲A"::INPUT KEYA
32      ? :? "NEW▲VALUE▲FOR▲KEY▲B"::INPUT KEYB
1ØØ     ? CHR$(125)
11Ø     POSITION 15.Ø:? "MENU"
12Ø     ? :? :? "1▲=▲INPUT▲TEXT":? :? "2▲=▲DECODE":? :? "3▲=▲
        ENCODE":? :? "4▲=▲CHANGE▲KEY":? :? "5▲=▲QUIT"
13Ø     ? :INPUT X$:IF LEN(X$)=Ø THEN 1ØØ
14Ø     T$=X$(1.1):IF T$<"1" OR T$>"5" THEN GOTO 11
15Ø     X=VAL(X$):IF X<1 OR X>5 THEN 11
16Ø     ON X GOTO 2Ø.9ØØ.1ØØØ.3Ø.31ØØØ
```

Set for decode

```
9ØØ     TEST=Ø:? CHR$(125):? :? :? "WAIT▲DECODING":? :? :? :GOT
        O 1ØØ5
```

```
1000  TEST=1:? CHR$(125):? :? :? "WAIT␣ENCODING":? :? :?
1005  IF LEN(MAIN$)=0 THEN ? "NO␣TEXT":GOSUB 5000:GOTO 100
1010  SEEDA=KEYA:SEEDB=KEYB:CODE$=""
1020  FOR LOOP=1 TO LEN(MAIN$)
1030  T$=MAIN$(LOOP.LOOP)
1040  FOR X=1 TO 37:IF T$=H$(X.X) THEN O=X
1050  NEXT X
1060  GOSUB 4000:X=C:Y=37:GOSUB 30000
1070  IF  NOT TEST THEN O=O-Z:IF O<1 THEN O=O+37
1080  IF TEST THEN O=O+Z:IF O>37 THEN O=O-37
1090  CODE$(LOOP.LOOP)=H$(O.O)
1100  NEXT LOOP:? CHR$(125)
1110  IF TEST THEN ? :? :? "CYPHER␣IS:":GOSUB 3000
1120  IF  NOT TEST THEN ? :? :? "PLAINTEXT␣IS:":GOSUB 3000
1130  ? :? "PRESS␣ENTER";:INPUT T$
1140  GOTO 100
3000  ? :? :? CHR$(34);CODE$;CHR$(34):MAIN$=CODE$
3010  ? :? :? "IGNORE␣";CHR$(34)
3020  ? :RETURN
```

Random number generator

```
4000  C=SEEDA+SEEDB
4010  IF C>32767 THEN C=C-32768
4020  C=C*2
4030  IF C>32767 THEN C=C-32767
4040  SEEDA=SEEDB:SEEDB=C
4050  RETURN :REM [illegible]
```

Delay loop

```
5000  FOR X=1 TO 500:NEXT X:RETURN
```

```
20000 KEYA=7:KEYB=32633:REM [illegible]
20001 SEEDA=KEYA:SEEDB=KEYB
20010 DIM MAIN$(255),CODE$(255)
20020 MAIN$="":CODE$=""
20030 DIM H$(37)
20040 H$="0123456789.ABCDEFGHIJKLMNOPQRSTUVWXYZ"
20050 SETCOLOR 4,0,0:SETCOLOR 1,0,15:SETCOLOR 2,0,0
20060 DIM X$(9),T$(9)
21000 GOTO 100
```

The modulo arithmetic routine

```
30000 Z=X/Y
30010 Z=Z-INT(Z)
30020 Z=Z+1/(Y*10)
30030 Z=INT(Z*Y)
30040 RETURN
```

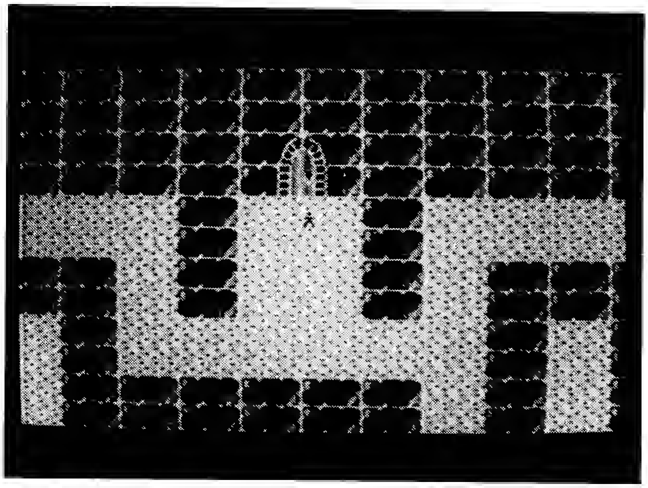
The good bye routine

```
31000 ? :? :? :? "SO LONG":END
```

ChexSum Tables

10	=	114	1000	=	2307	4030	=	1131
11	=	1228	1005	=	1398	4040	=	667
12	=	1881	1010	=	1088	4050	=	1543
20	=	3645	1020	=	615	5000	=	665
21	=	1436	1030	=	822	20000	=	2320
22	=	434	1040	=	1685	20001	=	793
23	=	746	1050	=	161	20010	=	865
24	=	796	1060	=	1169	20020	=	556
25	=	328	1070	=	1737	20030	=	418
26	=	481	1080	=	1749	20040	=	2886
27	=	112	1090	=	1278	20050	=	860
30	=	2797	1100	=	531	20060	=	705
31	=	3104	1110	=	1329	21000	=	112
32	=	1671	1120	=	1620	30000	=	577
100	=	343	1130	=	1186	30010	=	773
110	=	616	1140	=	112	30020	=	924
120	=	4861	3000	=	1422	30030	=	770
130	=	739	3010	=	1044	30040	=	58
140	=	1497	3020	=	127	31000	=	875
150	=	1268	4000	=	573			
160	=	795	4010	=	1132			
900	=	2433	4020	=	521	TOTAL	=	72569

DUNGEONS



CLASSIFICATION: Logic

Move your man round the maze of dungeons trying to find the exit. There are three dungeons and each one has an exit. Hitting the walls causes you to go back to the start of the maze. When you find an exit, move into it to reach the next level.

PROGRAMMING SUGGESTIONS

Increase the number of mazes in the game. Put objects in the maze which can eat you or send you back to the start.

Program Variables

LEVEL	Level you are playing.
MAXLEVELS	Maximium number of levels
T,A,A$,K,N	Dummy variables
COV	Counter for footsteps

Program Structure

1 - 8Ø	Intialization
1ØØ - 15Ø	Main Loop
4ØØ - 43Ø	Crash into wall
1ØØØ - 1Ø1Ø	More intialization
15ØØØ -1511Ø	Completed maze
3ØØØØ -3Ø362	Even more initialization

Listing

Intialization

```
1       DIM A$(32):? CHR$(125):POSITION 10.16:? "WAIT A MOMENT"
2       GOSUB 10000
3       GRAPHICS 18:? #6:? #6:? #6:? #6:? #6:? #6:"      WAIT!!
        !!"
9       POKE 203.41:POKE 204,80:POKE 205.64:POKE 206,156
10      RESTORE 11:FOR T=20746 TO 20479:READ A:POKE T,A:NEXT T
11      DATA 104,162,64,169,0,133,208,169,80,133,209,160,0,169,
        64,145,208
12      DATA 200.169,65,145,208,200.169,66,145,208,200,169.67,1
        45,208,200,192
13      DATA 128,208.232,169.68,145,208,200,169,69.145,208,200,
        169,70,145,208
14      DATA 200,169,71,145.208.200.208,234.230.209.202,208,205
        ,96
31      DATA 104,173,242,2,201,47,240,13,201,23,240,36,201,13,2
        40.59,201,10.240.66,96,165,203,201,128,176,7,165,204
32      DATA 201.81,176,1,96,56,165,203,233,128,133,203,165,204
        ,233,0,133,204,96,165,203,201,128,144,7,165,204,201,131
33      DATA 208.1,96,24,165,203,105,128,133,203,165,204,105,0,
        133.204,96,165,203,41,127,201,0,240,2,198,203,96
34      DATA 165.203,41,127,201,88,176,2,230,203,96
35      DATA 104,165,203,72,165,204,72,165,205,72,165,206,72
36      DATA 169,24,133,207,162,40,160,0,177,203,145,205,200,20
        2,208,248,24,165,203,105,128,133,203,165,204
37      DATA 105,0,133,204,24,165,205,105,40,133,205,165,206,10
        5,0,133,206,198,207,208,214
38      DATA 104,133,206,104,133,205,104,133,204,104,133,203,96
40      LEVEL=1:MAXLEVELS=4
50      GOSUB 1000
60      GRAPHICS 0:POKE 756,144:SETCOLOR 2,12,5:SETCOLOR 1,0,0
80      COU=4
100     A=USR(20311):A=USR(20408):IF PEEK(40379)<>89 THEN GOSUB
         400
105     POKE 40379,38
110     IF PEEK(203)+256*PEEK(204)=33705 THEN GOSUB 15000
120     COU=COU-1:IF  NOT COU THEN COU=2:FOR T=0 TO 30 STEP 10:
        SOUND 2,T,0,10:NEXT T:SOUND 2,0,0,0
150     GOTO 100
```

Crash into wall

```
400     FOR T=0 TO 30 STEP 5:SOUND 1,T,0,10:NEXT T:SOUND 1,0,0,
        0
410     POKE 754,0:POKE 203,41:POKE 204,80
420     FOR T=0 TO 30:POKE 756,224:POKE 756,144:NEXT T
430     RETURN
```

More intialization

```
1000  RESTORE 30000+LEVEL*100:GRAPHICS 20:COLOR 1:A=USR(20246
      )
1010  FOR T=0 TO 31:READ A$
1020  FOR N=1 TO 32
1030  C=20480+T*512+(N-1)*4
1040  IF  NOT (ASC(A$(N))-32) THEN FOR A=0 TO 3:FOR B=0 TO 3:
      POKE C+A*128+B,89:NEXT B:NEXT A:PLOT N+24,T+8
1050  NEXT N:NEXT T
1060  FOR T=0 TO 3:FOR N=0 TO 3:POKE 21050+N+T*128,72+N+T*4:N
      EXT N:NEXT T
1070  FOR T=0 TO 3:FOR N=0 TO 3:POKE 34362+N+T*128,72+N+T*4:N
      EXT N:NEXT T
1100  RETURN
10000 POKE 756,144
10010 FOR T=0 TO 1023:POKE 36864+T,PEEK(57344+T):NEXT T
10020 RESTORE 10100+(INT(RND(1)*2)*21):FOR T=37376 TO 37439:R
      EAD A:POKE T,A:NEXT T:RESTORE 10130
10021 FOR T=37440 TO 37583:READ A:POKE T,A:NEXT T:RETURN
10100 DATA 0,127,213,175,223,175,95,127,0,31,191,255,255,255,
      255,255,0,243,255,255,255,255,255,255
10110 DATA 0,240,252,254,254,254,254,250,255,255,255,255,255,
      255,127,31,255,255,255,255,255,255,247,231
10120 DATA 255,255,255,255,253,250,253,255,244,250,244,234,86
      ,170,84,60
10121 DATA 0,127,85,106,85,106,85,106,0,255,85,170,85,170,85,
      170,0,255,85,170,85,170,85,170
10122 DATA 0,255,87,171,87,171,87,171,85,106,85,106,85,106,12
      7,127,85,170,85,170,85,170,255,255
10123 DATA 85,170,85,170,85,170,255,255,87,171,87,171,87,171,
      255,255
10130 DATA 0,227,255,255,255,255,254,254,0,240,252,231,158,63
      ,222,239,0,7,63,103,249,126,251,119
10135 DATA 0,248,253,255,255,255,127,127
10140 DATA 252,253,251,251,249,246,247,231,244,113,130,229,20
      2,21,202,213,47,78,161,87,171,80,171,83
10150 DATA 63,191,223,223,159,111,239,239,0,143,239,239,240,2
      39,239,239,42,149,170,149,42,149,170,149
10160 DATA 168,85,169,85,184,125,185,17,8,247,247,247,15,247,
      247,247,240,239,239,239,240,239,239,239
10170 DATA 42,149,170,149,42,149,170,149,128,69,169,85,168,85
      ,169,85,15,247,247,247,15,247,247,247
10180 DATA 24,24,0,126,24,60,102,102
10190 DATA 0,24,0,0,3,0,46,0
```

Completed maze

```
15000 FOR T=37376 TO 37567 STEP 8:RESTORE 15100:FOR N=0 TO 3:
      FOR K=0 TO 7:READ A:POKE T+K,A:NEXT K:NEXT N
15010 FOR K=T TO (T+7):POKE K,0:NEXT K:SOUND 0,INT(RND(1)*255
      ),0,10:NEXT T:SOUND 0,0,0,0
```

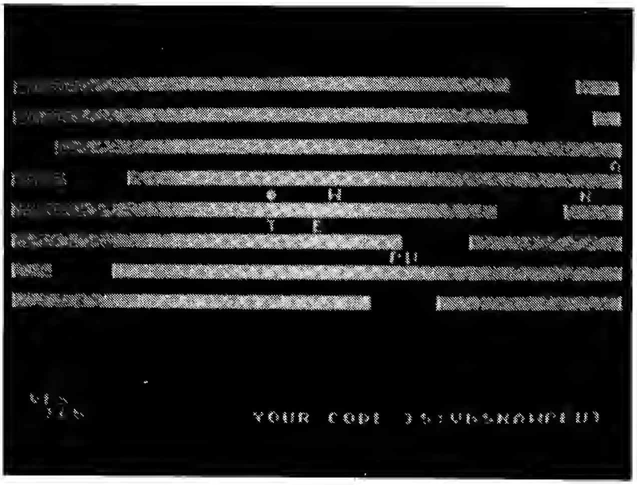
```
15020 LEVEL=LEVEL+1:IF LEVEL=MAXLEVELS THEN GOTO 15060
15030 GRAPHICS 18:POSITION 0,5:? #6:"▲▲▲▲▲▲LEVEL▲":LEVEL:FOR
      T=0 TO 255:SOUND 0.T.10.10:NEXT T:SOUND 0,0,0,0
15040 GOSUB 10000:POP :POKE 203,41:POKE 204,80:GOTO 50
15060 GRAPHICS 18:POSITION 0,5:? #6:"▲▲▲▲▲▲▲THE▲END."
15070 FOR T=0 TO 1000:NEXT T:GRAPHICS 0:END
15100 DATA 126.255,191,223,159,223,159,126,100.230,175,235,25
      .94,224,71
15110 DATA 192,134,14.12,0,64,193,99,128,130,4.0,0,64,64,1
20000 FOR T=0 TO 3:FOR N=0 TO 3:POKE 21054+N+T*128,72+N+T*4:N
      EXT N:NEXT T
20100 GOTO 20100
30100 DATA ................................
30102 DATA ................................
30104 DATA ....   .     .  .         ......
30106 DATA .... . . ... .  . ... . . ......
30108 DATA .... .   . .      . . . . ......
30110 DATA .... ...   ...... . . . . ......
30112 DATA ....   ...      .   . . .  .....
30114 DATA ...... . ...... ..... . ..  .....
30116 DATA ....   . ..     .     .  . .....
30118 DATA .... .    . ... . ........ .....
30120 DATA .... .... .     .      .   .....
30122 DATA .... .. . ............ ... .....
30124 DATA ....    . .      .     .   .....
30126 DATA ...... .. . .... . ... . .......
30128 DATA ....      . .    . . . .   .....
30130 DATA ..... ..... . .. .   . ... .....
30132 DATA ....        .  . ..... . . .....
30134 DATA ..... ........ .       . . .....
30136 DATA ....  .     .. ......... . .....
30138 DATA .... .. ... ..      .      .....
30140 DATA ....    . . ....... ...... .....
30142 DATA .... . ..   .   .    . .   .....
30143 DATA .... . .  ... .   .. . . . .....
30144 DATA .... . ....   ...... . . . .....
30145 DATA .... .    . ......   . . . .....
30146 DATA .... ......      . . . . . .....
30148 DATA .... .    ... .. .   .   . .....
30150 DATA .... . ...... .. ......... .....
30152 DATA .... .           .         .....
30154 DATA ................................
30156 DATA ................................
30158 DATA ................................
30200 DATA ................................
30202 DATA ................................
30204 DATA ....   .   .      .        .....
30206 DATA .... . . . . .... . . .... .....
30208 DATA .... .   . .      . . .  . .....
30210 DATA .... ..... .. .. .. . .. . .....
30212 DATA ....     .    ..    .    . .....
30214 DATA .... . . .. .............. .....
30216 DATA .... . . ..           .    .....
```

```
30218 DATA .... . . ............ . ........
30220 DATA .... .                . . ......
30222 DATA .... ...... . . .. .. .    .....
30224 DATA .... . .    . . .. .. .. . .....
30226 DATA ....   . ......... .   . . .....
30228 DATA ........ .         . . . . .....
30230 DATA ....     . ......... . . . .....
30232 DATA .... ..... .       . . .   .....
30234 DATA .... .     . ............  .....
30236 DATA .... ... .              ........
30237 DATA ....   . . ............   ......
30238 DATA ........ . .      .   ...  .....
30240 DATA ....       . .... . .   .. .....
30242 DATA .... .......      . ...  . .....
30243 DATA .... .     . .... . . .. . .....
30244 DATA .... . ... .      . .    . .....
30246 DATA .... . . . .  ..  . .... . .....
30248 DATA .... .   . . .... .    . . .....
30250 DATA .... ..... .  ..  .... . . .....
30252 DATA ....       .           .   .....
30254 DATA ................................
30256 DATA ................................
30258 DATA ................................
30300 DATA ................................
30302 DATA ................................
30304 DATA ....  ..   .               .....
30306 DATA .... ..  . . ..... . .. .  .....
30308 DATA ....    ..    ..  .  . . . .....
30310 DATA ..... .... ... . . .  . .  .....
30312 DATA .....        .. .   .  . . .....
30314 DATA ....   . . . . . . .  . . ......
30316 DATA ..... . .  .  . . .  . . . .....
30318 DATA ....   .  .  . .   . ..   ......
30320 DATA .... .  .  .  .  .      .  .....
30322 DATA ..... . . .  . .  .. . . . .....
30324 DATA ....  .  . .    .   .    . .....
30326 DATA .....   . ..... .. . . .   .....
30328 DATA .... . . ..   . .   ... ........
30330 DATA .....  ...  ... ...   .    .....
30332 DATA ..... ..   .. . .  ..  ... .....
30334 DATA ....  .  ..   . ..   .  .  .....
30336 DATA .... .. .   ... .... .. .. .....
30338 DATA .... .. . .. .   . . .. .. .....
30340 DATA .... .. .    . . .   .. .  .....
30342 DATA ....    . .. .   . . .. . ......
30344 DATA .... .. . ..  ...  . .. . ......
30346 DATA .... .. .  ..     .. .  .  .....
30348 DATA .... .....   ....... . .. ......
30350 DATA .... .    ..       . . .. ......
30352 DATA .... . ..   ...... . .     .....
30354 DATA .... . .. .   ...  . ..... .....
30356 DATA ....   .  ....    .        .....
30358 DATA ................................
30360 DATA ................................
30362 DATA ................................
```

ChexSum Tables

1 =	2150
2 =	115
3 =	2208
9 =	1484
10 =	1570
11 =	3124
12 =	3328
13 =	3340
14 =	2767
31 =	5147
32 =	5312
33 =	4963
34 =	2032
35 =	2479
36 =	4767
37 =	3925
38 =	2597
40 =	691
50 =	129
60 =	1216
80 =	336
100 =	1951
105 =	493
110 =	1212
120 =	2805
150 =	112
400 =	1540
410 =	1007
420 =	1437
430 =	58
1000 =	1401
1010 =	579
1020 =	441
1030 =	1267
1040 =	3868
1050 =	334
1060 =	2669
1070 =	2739
1100 =	58
10000 =	391
10010 =	1759
10020 =	2992
10021 =	1686
10100 =	4469
10110 =	4723
10120 =	3139
10121 =	4124
10122 =	4347
10123 =	3015
10130 =	4352
10135 =	1600
10140 =	4552
10150 =	4632
10160 =	4624
10170 =	4526
10180 =	1367
10190 =	965
15000 =	3412
15010 =	2678
15020 =	1173
15030 =	3051
15040 =	1182
15060 =	1403
15070 =	718
15100 =	3126
15110 =	2461
20000 =	2673
20100 =	115
30100 =	1628
30102 =	1628
30104 =	1362
30106 =	1488
30108 =	1418
30110 =	1502
30112 =	1404
30114 =	1544
30116 =	1390
30118 =	1502
30120 =	1404
30122 =	1558
30124 =	1362
30126 =	1530
30128 =	1390
30130 =	1502
30132 =	1432
30134 =	1474
30136 =	1488
30138 =	1418
30140 =	1516
30142 =	1404
30143 =	1460
30144 =	1502
30145 =	1460
30146 =	1460
30148 =	1432
30150 =	1558
30152 =	1334
30154 =	1628
30156 =	1628
30158 =	1628
30200 =	1628
30202 =	1628
30204 =	1348
30206 =	1502
30208 =	1404
30210 =	1516
30212 =	1376
30214 =	1558
30216 =	1376
30218 =	1558
30220 =	1362
30222 =	1488
30224 =	1460
30226 =	1488
30228 =	1432
30230 =	1488
30232 =	1432
30234 =	1502
30236 =	1404
30237 =	1516
30238 =	1446
30240 =	1432
30242 =	1474
30243 =	1460
30244 =	1418
30246 =	1474
30248 =	1446
30250 =	1502
30252 =	1334
30254 =	1628
30256 =	1628
30258 =	1628
30300 =	1628
30302 =	1628
30304 =	1348
30306 =	1468
30308 =	1418
30310 =	1488
30312 =	1404
30314 =	1446
30316 =	1446
30318 =	1418
30320 =	1390
30322 =	1460
30324 =	1390
30326 =	1474
30328 =	1474
30330 =	1460
30332 =	1474
30334 =	1418
30336 =	1502
30338 =	1474
30340 =	1432
30342 =	1446
30344 =	1488
30346 =	1432
30348 =	1530
30350 =	1418
30352 =	1460
30354 =	1488
30356 =	1390
30358 =	1628
30360 =	1628
30362 =	1628
TOTAL =	298872

LETRMAZE



CLASSIFICATION: Skill

The object is to collect the letters in the maze in the shortest possible time and in the same order as shown at the bottom right of the screen. A letter is collected by touching it with your man. Joystick 2 moves your man (solid circle) verticaly and horizontaly. When the fire button is held down movement will be two spaces at once instead of one. Movement 'wraps around' horizontaly.

PROGRAMMING SUGGESTIONS

Increase the size of the maze and give a number of levels to the game.

Program Variables

A()	Holds offsets
AM	=2 if fire pressed else =1
CODE$	Holds code to be done
D()	Direction of line movement
MAX	Constant for random selection
OK	Flag
OLDPH	Old horizontal position
OLDPV	Old vertical position
PH	Man's horizontal position
PLACE	Points to next code letter to be obtained
POS	Screen address
PV	Man's vertical position
Q	Local
R	Where to peek for a random number
SCREEN	Address of first byte of video RAM
T	Local
TIME	Holds score
TN	Constant =39
X	Local
X$	Local string
Y	Local
Z	Local

Program Structure

1∅	Set margins and goto initialize
1∅∅ - 2∅∅	Draw the maze
3∅∅ - 35∅	Read the joystick routine
1∅∅∅ - 1∅9∅	Main loop
2∅∅∅ - 2∅4∅	Hit something
3∅∅∅ - 3∅7∅	Wrong thing
4∅∅∅ - 4∅3∅	Got all the pieces
2∅∅∅∅ - 21∅∅∅	Initialize subroutine

Listing

```
10      POKE 82.Ø:POKE 83.39:GOTO 2ØØØØ
```

Draw the maze

```
1ØØ     POSITION Ø.1:Z=A(1):? B$(Z.Z+TN):Z=Z+D(1):IF Z>FE THEN
        Z=Z-FE
1Ø1     IF Z<1 THEN Z=Z+FE
1Ø2     A(1)=Z:IF PEEK(R)>MAX THEN D(1)=-D(1)
11Ø     POSITION Ø.3:Z=A(2):? B$(Z.Z+TN):Z=Z+D(2):IF Z>FE THEN
        Z=Z-FE
111     IF Z<1 THEN Z=Z+FE
112     A(2)=Z:IF PEEK(R)>MAX THEN D(2)=-D(2)
12Ø     POSITION Ø.5:Z=A(3):? B$(Z.Z+TN):Z=Z+D(3):IF Z>FE THEN
        Z=Z-FE
121     IF Z<1 THEN Z=Z+FE
122     A(3)=Z:IF PEEK(R)>MAX THEN D(3)=-D(3)
13Ø     POSITION Ø.7:Z=A(4):? B$(Z.Z+TN):Z=Z+D(4):IF Z>FE THEN
        Z=Z-FE
131     IF Z<1 THEN Z=Z+FE
132     A(4)=Z:IF PEEK(R)>MAX THEN D(4)=-D(4)
14Ø     POSITION Ø.9:Z=A(5):? B$(Z.Z+TN):Z=Z+D(5):IF Z>FE THEN
        Z=Z-FE
141     IF Z<1 THEN Z=Z+FE
142     A(5)=Z:IF PEEK(R)>MAX THEN D(5)=-D(5)
15Ø     POSITION Ø.11:Z=A(6):? B$(Z.Z+TN):Z=Z+D(6):IF Z>FE THEN
         Z=Z-FE
151     IF Z<1 THEN Z=Z+FE
152     A(6)=Z:IF PEEK(R)>MAX THEN D(6)=-D(6)
16Ø     POSITION Ø.13:Z=A(7):? B$(Z.Z+TN):Z=Z+D(7):IF Z>FE THEN
         Z=Z-FE
161     IF Z<1 THEN Z=Z+FE
162     A(7)=Z:IF PEEK(R)>MAX THEN D(7)=-D(7)
17Ø     POSITION Ø.15:Z=A(8):? B$(Z.Z+TN):Z=Z+D(8):IF Z>FE THEN
         Z=Z-FE
171     IF Z<1 THEN Z=Z+FE
172     A(8)=Z:IF PEEK(R)>MAX THEN D(8)=-D(8)
2ØØ     RETURN
```

Read the joystick routine

```
3ØØ     Z=STICK(Ø):AM=1:IF  NOT STRIG(Ø) THEN AM=2
31Ø     IF Z=14 AND PV>Ø THEN PV=PV-AM
32Ø     IF Z=13 AND PV<21 THEN PV=PV+AM
33Ø     IF Z=11 THEN PH=PH-AM:IF PH<Ø THEN PH=TN
34Ø     IF Z=7 THEN PH=PH+AM:IF PH>TN THEN PH=Ø
35Ø     RETURN
```

Main loop

```
1ØØØ  GOSUB 1ØØ:POSITION 2.23:? TIME:" ";:TIME=TIME+1
1Ø1Ø  GOSUB 3ØØ
1Ø2Ø  POS=PH+4Ø*PV+SCREEN
1Ø3Ø  OLDPOS=OLDPH+4Ø*OLDPV+SCREEN
1Ø4Ø  O=PEEK(POS):IF O THEN 2ØØØ
1Ø5Ø  POKE OLDPOS.Ø
1Ø6Ø  POKE POS.84
1Ø7Ø  OLDPH=PH:OLDPV=PV
1Ø9Ø  GOTO 1ØØØ
```

Hit something

```
2ØØØ  IF O=84 THEN 1Ø5Ø
2Ø1Ø  IF ASC(CODE$(PLACE.PLACE))<>O+32 THEN 3ØØØ
2Ø2Ø  POSITION PLACE.22:? CHR$(O+32);
2Ø3Ø  PLACE=PLACE+1:IF PLACE=11 THEN 4ØØØ
2Ø4Ø  GOTO 1Ø5Ø
```

Wrong thing

```
3ØØØ  FOR T=1 TO 25:? :NEXT T
3Ø1Ø  ? "         NOPE YOU FLUFFED IT!!!"
3Ø2Ø  FOR T=1 TO 12:FOR X=1 TO 1Ø.NEXT X:? :NEXT T
3Ø3Ø  FOR T=1 TO 1ØØØ:NEXT T
3Ø4Ø  POSITION 5.23
3Ø5Ø  ? "[illegible]";
3Ø6Ø  INPUT X$
3Ø7Ø  RUN
```

Got all the pieces

```
4ØØØ  FOR T=1 TO 18:? :NEXT T
4Ø1Ø  ? "YOU HAVE COMPLETED THE CODE!!"
4Ø2Ø  ? :? "YOUR TIME WAS ";TIME
4Ø3Ø  GOTO 3Ø2Ø
```

Initialize subroutine

```
20000 DIM B$(88),X$(9):R=53770:MAX=240:TN=39:FE=48
20010 GRAPHICS 2+16
20020 POSITION 7,6
20030 ? #6;"WAIT"
20040 FOR X=1 TO 40
20050 B$(X,X)=CHR$(160)
20060 NEXT X
20070 FOR X=41 TO 44
20080 B$(X,X)=" "
20090 NEXT X
20100 FOR X=45 TO 88
20110 B$(X,X)=CHR$(160)
20120 NEXT X
20130 DIM A(8),D(8)
20140 FOR X=1 TO 6
20150 Z=INT(RND(Ø)*39)+1
20160 A(X)=Z
20170 Z=INT(RND(Ø)*3)-1
20180 IF Z=Ø THEN 20170
20190 D(X)=Z
20200 NEXT X
20220 DIM CODE$(1Ø):SCREEN=4ØØØØ
20230 FOR X=1 TO 1Ø
20240 Z=INT(RND(Ø)*26)+65
20250 IF LEN(CODE$)=Ø THEN 2Ø3ØØ
20260 OK=1
20270 FOR T=1 TO LEN(CODE$)
20280 IF ASC(CODE$(T,T))=Z THEN OK=Ø
20290 NEXT T:IF NOT OK THEN 2Ø24Ø
20300 CODE$(X,X)=CHR$(Z)
20310 NEXT X
20320 GRAPHICS Ø:POKE 752,1:POKE [illegible]
20340 FOR T=1 TO LEN(CODE$)
20350 Y=INT(RND(Ø)*7)+2
20360 X=INT(RND(Ø)*4Ø)
20370 OK=Y*4Ø+X+SCREEN
```

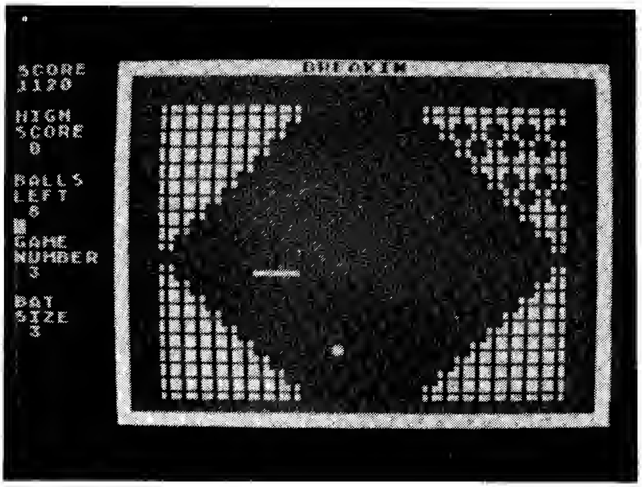
Put character to screen

```
20380 IF PEEK(OK)<>Ø THEN 2Ø35Ø
20390 POKE OK,ASC(CODE$(T,T))-32
20410 NEXT T
20420 PLACE=1
20430 POSITION 16,22
20440 ? "YOUR CODE IS:";CODE$;
20450 PH=2Ø:PV=21
20460 OLDPH=PH:OLDPV=PV
20470 TIME=Ø
21000 GOTO 1ØØØ
```

ChexSum Tables

10	=	906
100	=	3398
101	=	843
102	=	1939
110	=	3402
111	=	843
112	=	1942
120	=	3406
121	=	843
122	=	1945
130	=	3410
131	=	843
132	=	1948
140	=	3414
141	=	843
142	=	1951
150	=	3424
151	=	843
152	=	1954
160	=	3428
161	=	843
162	=	1957
170	=	3432
171	=	843
172	=	1960
200	=	58
300	=	1520
310	=	1122
320	=	1216
330	=	1567
340	=	1551
350	=	58
1000	=	1317
1010	=	116
1020	=	929
1030	=	943
1040	=	912
1050	=	227
1060	=	421
1070	=	817
1090	=	127
2000	=	620
2010	=	1288
2020	=	930
2030	=	1041
2040	=	207
3000	=	738
3010	=	1782
3020	=	1452
3030	=	626
3040	=	281
3050	=	6208
3060	=	174
3070	=	59
4000	=	738
4010	=	2022
4020	=	1367
4030	=	191
20000	=	2766
20010	=	282
20020	=	254
20030	=	523
20040	=	470
20050	=	1049
20060	=	180
20070	=	538
20080	=	757
20090	=	180
20100	=	610
20110	=	1049
20120	=	180
20130	=	695
20140	=	414
20150	=	906
20160	=	627
20170	=	852
20180	=	427
20190	=	630
20200	=	180
20220	=	757
20230	=	422
20240	=	987
20250	=	503
20260	=	351
20270	=	641
20280	=	1278
20290	=	592
20300	=	1017
20310	=	180
20320	=	666
20340	=	641
20350	=	880
20360	=	818
20370	=	966
20380	=	588
20390	=	1155
20410	=	179
20420	=	347
20430	=	298
20440	=	1174
20450	=	763
20460	=	817
20470	=	274
21000	=	127
TOTAL	=	113175

BREAKIN



CLASSIFICATION: Reflex

You are inside a four-walled container with a series of brick walls, a moving ball and a bat. The ball is bouncing off the bricks and you must use your bat to stop it getting past you and hitting the wall. You are given nine balls for each game and you lose a ball each time one gets past your bat. The bat can be moved left and right using the joystick. There are three different bricks walls and two bat sizes. The smaller the bat, the more points scored.

PROGRAMMING SUGGESTIONS

Add more brick walls to the game and make them more exotic. Vary the speed that the ball travels round the court.

Program Variables

SC	Start of screen
KE	Joystick port value
BS	Batsize
GS	Game size
BV	Vertical postion of bat
BH	Horizontal position of bat
BY	Vertical position of ball
BX	Horizontal position of ball
BA	Screen position of ball
DX	Horizontal movement value of ball
DY	Vertical movement value of ball

Program Structure

1Ø - 55	Intialization
6Ø - 15Ø	Move the bat across the screen
16Ø - 26Ø	Check for boundary hit
27Ø - 31Ø	Check for missed ball
32Ø - 81Ø	Select the game
83Ø - 89Ø	Print game one on the screen
9ØØ - 98Ø	Print game two on the screen
99Ø - 1Ø8Ø	Print game three on the screen
1Ø9Ø - 115Ø	End the game

Listing

```
1       SETCOLOR 2,7,4
10      REM BREAKIN
11      CLR
12      DIM DN$(63),GM$(1),BS$(1),A$(1),SPC$(40)
13      SP=0:REM SET DEFINITION OF SPACE
14      POKE 82,0:BE=40000:REM START OF SCREEN
15      WI=82:REM SET BAT CHARACTER
16      WA=211:REM SET BARRIER CHARACTER
17      CI=84:REM SET BALL CHARACTER
19      POKE 752,0
20      DN$(1,63)="↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓→→→→→→→→→
        →→→→→→→→→→→→→→→→→→→"
21      FOR I=1 TO 40:SPC$(I,I)="→":NEXT I
30      SC=40000:NB=9:GOTO 330
40      GOTO 20
50      SOUND 0,60,10,8:SOUND 0,60,10,0
55      RETURN
60      REM MOVE BAT
61      REM ========
70      KE=STICK(1):IF KE=15 THEN A=64
80      IF KE=7 THEN A=12
90      IF KE=11 THEN A=36
100     IF A=64 THEN 170
110     PO=BE+(BV*40)+BH:FOR I=PO TO PO+BS-1:POKE I,0:NEXT I
120     BH=BH+((A=12)-(A=36))*2
130     IF BH<8 THEN BH=8
140     IF BH>38-BS THEN BH=38-BS
150     PO=BE+(BV*40)+BH:FOR I=PO TO PO+BS-1:POKE I,82:NEXT I
160     REM CHECK BOUNDARY HIT
161     REM ==================
170     BX=BX+DX:BY=BY+DY:FF=21
180     IF BX<9 THEN DX=-DX:GOSUB 50:GOTO 230
190     IF BX>36 THEN DX=-DX:GOSUB 50:GOTO 230
200     IF BY<=1 THEN BY=1:DY=-DY:GOSUB 50:GOTO 230
210     IF BY>=22 THEN BY=22:DY=-DY:GOSUB 50
220     REM CHECK BAT/BRICK HIT & PRINT BALL
230     POKE BA,SP:BA=SC+BY*40+BX
240     IF PEEK(BA)=WI THEN BA=B1:DY=-DY:FF=-133:GOSUB 50:GOTO
        60
250     IF PEEK(BA)=WA THEN DY=-DY:FF=35:GOSUB 50:GS=GS+1:POSIT
        ION 0,0:PRINT "↓";GS
260     POKE BA,CI
270     REM CHECK FOR MISSED BALL
280     IF GM=1 AND BY=22 AND DY=-1 THEN NB=NB-1:POSITION 0,0:P
        RINT "↓↓↓↓↓↓↓↓↓↓";"▲";NB
290     IF GM<>1 AND BY=11 THEN NB=NB-1:POSITION 0,0:PRINT "↓↓↓
        ↓↓↓↓↓↓↓";"▲";NB
300     IF NB<1 THEN 1090
310     IF INT(GS/100)-(GS/100)<>0 THEN 60
320     ON GM GOSUB 830,900,990
330     REM
340     PRINT CHR$(125);
600     PRINT CHR$(125);:PRINT "↓↓↓↓↓↓↓↓↓↓▲▲▲▲▲▲▲▲▲▲▲
        ▲B▲R▲E▲A▲K▲I▲N"
```

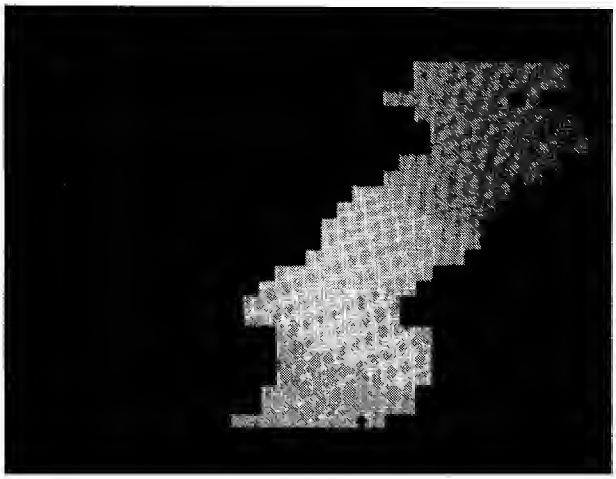
```
610  FOR I=1 TO 200:NEXT I:FF=21:PRINT "↓↓"
620  GOSUB 50
630  PRINT "▲▲▲▲▲▲▲▲▲SELECT GAME NUMBER(1-3)":FOR
     T=1 TO 90:N EXT T
640  PRINT "↑▲▲▲▲▲▲▲▲▲SELECT▲GAME▲NUMBER(1-3)";:FOR T=1
     TO 90 :NEXT T
650  GM=PEEK(754):IF GM<26 THEN PRINT :PRINT "↑";:GOTO 620
660  IF GM>31 THEN PRINT :PRINT "↑";:GOTO 620
661  IF GM=31 THEN GM=1:GOTO 670
662  IF GM=30 THEN GM=2:GOTO 670
663  IF GM=26 THEN GM=3:GOTO 670
665  GOTO 640
670  PRINT "▲";GM:PRINT :FF=35
675  POKE 754,0
680  GOSUB 50
690  PRINT "▲▲▲▲▲▲▲▲▲▲SELECT BAT SIZE(2-3)":FOR T=1
     TO 90:NEXT
700  PRINT "↑▲▲▲▲▲▲▲▲▲▲SELECT▲BAT▲SIZE(2-3)";:FOR T=1
     TO 90:NEXT T
710  BS=PEEK(754):IF BS<26 THEN PRINT :PRINT "↑";:GOTO 680
720  IF BS>30 THEN PRINT :PRINT "↑";:GOTO 680
721  IF BS=30 THEN BS=2:GOTO 730
722  IF BS=26 THEN BS=3:GOTO 730
725  GOTO 700
730  POKE 754,0:PRINT "▲";BS
740  NB=9:GS=100*(4-BS)
750  FOR T=1 TO 500:NEXT T
760  PRINT CHR$(125);:PRINT "▲▲▲▲▲▲▲▲██████████████████████
     BREAKIN██████████"
770  FOR I=1 TO 22:PRINT "▲▲▲▲▲▲▲▲█▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲
     ▲▲▲▲▲▲▲▲▲▲▲▲▲█":NEXT I
780  PRINT "▲▲▲▲▲▲▲▲████████████████████████████
     ████";:POSITION 0,0
790  POSITION 0,0:PRINT "SCORE":PRINT "";GS:PRINT "↓HIGH":PR
     INT "SCORE":PRINT "▲";HS:PRINT "↓BALLS"
800  PRINT "LEFT":PRINT "▲";NB:PRINT "↓GAME":PRINT "NUMBER":
     PRINT "▲";GM
810  PRINT "↓BAT":PRINT "SIZE":PRINT "▲";BS
820  ON GM GOTO 830,900,990
830  REM GAME 1
840  POSITION 0,0:PRINT "↓↓"
850  FOR J=1 TO 4:PRINT "→→→→→→→→:▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬
     ▬▬▬▬▬▬▬▬▬▬▬:":NEXT J
860  IF GS>0 THEN GS=GS+1
870  IF SW>0 THEN 60
880  SW=1:BV=21:BH=17:BY=15:BX=18:BA=SC+BY*40+BX:DX=-1:DY=-1
890  GOTO 110
900  REM GAME2
910  POSITION 0,0:PRINT "↓↓"
920  FOR J=1 TO 3:PRINT "→→→→→→→→:▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬
     :▬▬▬:":NEXT J
930  PRINT "↓↓↓↓↓↓↓↓↓↓↓↓"
940  FOR J=1 TO 3:PRINT "→→→→→→→→:▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬
     :▬▬▬:":NEXT J
950  IF GS>0 THEN GS=GS+1
960  IF SW>0 THEN 60
```

```
970   SW=1:BV=13:BH=20:BY=10:BX=21:BA=SC+BY*40+BX:DX=1:DY=-1
980   GOTO 110
990   REM GAME 3
1000  POSITION 0,0:PRINT "↓↓"
1010  FOR I=0 TO 8:PRINT "→→→→→→→→→→";:FOR J=9-I TO 1 STEP
      -1 :PRINT "▪▪";:NEXT J
1020  PRINT SPC$(1,I*2+8);:FOR J=9-I TO 1 STEP -1:PRINT "▪▪";:
      NEXT J:PRINT :NEXT I:PRINT
1030  FOR I=0 TO 8:PRINT "→→→→→→→→→→";:FOR J=1
      TO I+1:PRINT "▪▪";:NEXT J
1040  PRINT SPC$(1,((8-I)*2)+8);:FOR J=1 TO I+1:PRINT "▪▪";:NE
      XT J:PRINT :NEXT I:POSITION 0,0
1050  IF GS>0 THEN GS=GS+1
1060  IF SW>0 THEN 60
1070  SW=1:BV=13:BH=16:BY=9:BX=24:BA=SC+BY*40+BX:DX=1:DY=-1
1080  GOTO 110
1090  REM END OF GAME
1100  POSITION 0,0:PRINT "↓↓↓↓↓↓↓↓↓↓↓↓↓→→→→→→→→→→▴▴▴
      ▴ANOTHER▴ GAME(Y/N)";
1110  INPUT A$
1120  IF A$="N" THEN PRINT CHR$(125);:END
1130  IF A$<>"Y" THEN 1110
1140  IF GS>HS THEN HS=GS
1150  SW=0:GOTO 600
```

ChexSum Tables

1	353	290	1987	810	1020
11	40	300	546	820	721
12	1835	310	1127	840	268
13	2052	320	722	850	5505
14	1926	340	356	860	809
15	1820	600	1689	870	436
16	2019	610	1185	880	4055
17	1893	620	192	890	128
19	253	630	5639	910	268
20	2648	640	2749	920	5504
21	1436	650	1424	930	429
30	914	660	745	940	5504
40	142	661	996	950	809
50	985	662	996	960	436
55	58	663	987	970	3998
70	1344	665	181	980	128
80	680	670	771	1000	268
90	726	675	255	1010	2193
100	602	680	192	1020	2740
110	2387	690	5073	1030	1998
120	1443	700	2567	1040	2962
130	676	710	1502	1050	809
140	1145	720	831	1060	436
150	2581	721	915	1070	3984
170	1635	722	906	1080	128
180	1216	725	118	1100	2269
190	1262	730	551	1110	155
200	1621	740	1129	1120	761
210	1476	750	631	1130	452
230	1341	760	6151	1140	825
240	2462	770	2344	1150	434
250	2820	780	5650		
260	360	790	2712		
280	2400	800	1962	TOTAL	152964

RACER



CLASSIFICATION: Skill

The object of this game is to get as far around the course as possible. Steer the car left and right with the joystick. To make the car go faster push the joystick forward, to go slower press the joystick back.

PROGRAMMING SUGGESTIONS

Add a speedometer to the car so you can tell just how fast the car is travelling. Also add other cars to the race to compete against you.

Program Variables

A	Local
CAR$	Holds car
CARPOS	Horizontal position of car
DIFFICULTY	Difficulty level
F	Flag
LEFTLIMIT	Left limit of road
R	=5377Ø Where to peek for a random number Ø - 255
RICHTLIMIT	Right limit of road
ROAD$	Holds road
ROADPOS	Horizontal position of road
SCORE	Holds score
SPEED	Speed of movement
VOL	Volume of sound
X	Local
Y	Local

Program Structure

1Ø	Jump to initialization
3ØØ - 61Ø	Main loop
1ØØØ - 1Ø6Ø	Game End
2ØØØ - 2Ø8Ø	Came start
2ØØØØ - 2122Ø	Initialize game

Listing

```
10      GOTO 20000
```

Main loop

```
300     SCORE=SCORE+1:X=RND(0)*DIFFICULTY:IF PEEK(R)>127 THEN X
        =-X
320     ROADPOS=ROADPOS+X:IF ROADPOS>RIGHTLIMIT THEN ROADPOS=RI
        GHTLIMIT
330     IF ROADPOS<LEFTLIMIT THEN ROADPOS=LEFTLIMIT
350     POSITION 1,0:? ROAD$(ROADPOS,ROADPOS+37):A=USR(ADR(CODE
        $))
360     IF PEEK(R)>217 THEN POKE 40041+INT(RND(0)*36),128
430     X=STICK(1):IF (X=11 OR X=10 OR X=9) AND CARPOS>3 THEN C
        ARPOS=CARPOS-1
440     IF (X=7 OR X=6 OR X=5) AND CARPOS<37 THEN CARPOS=CARPOS
        +1
450     IF PEEK(40920+CARPOS) THEN 1000
550     POSITION CARPOS,23:? CAR$;
560     SOUND 0,SPEED+40,2,8
570     IF (X=14 OR X=10 OR X=6) AND SPEED>0 THEN SPEED=SPEED-1
590     IF (X=13 OR X=9 OR X=5) AND SPEED<215 THEN SPEED=SPEED+
        1
600     IF SPEED=0 THEN 300
610     FOR X=1 TO SPEED STEP 4:NEXT X:GOTO 300
```

Game End

```
1000    VOL=15:FOR Y=0 TO 4:FOR X=0 TO 32:POSITION CARPOS,23
1010    ? CHR$(X);:SOUND 0,20,0,VOL:VOL=VOL-0.09:NEXT X:NEXT Y
1020    FOR X=0 TO 25:? :NEXT X
1030    ? "SCORE=▲";SCORE:? :? :? "AT▲LEVEL▲:";DIFFICULTY:? :?
1040    ? :? :? "PRESS▲START▲FOR▲ANOTHER▲GAME"
1050    IF PEEK(53279)<>6 THEN 1050
1060    GOTO 21000
```

Game start

```
2000    POKE 752,1:? CHR$(125):FOR X=1 TO 30:POSITION 1,0:? ROA
        D$(16,53);:A=USR(ADR(CODE$)):NEXT X
2010    CARPOS=22:POSITION CARPOS,23:? CAR$;:SOUND 0,240,2,8
2020    POSITION 17,18:? "█START█";
2030    GOSUB 21200:IF  NOT STRIG(1) THEN 2070
2040    POSITION 17,18:? "█START█";
2050    GOSUB 21200:IF  NOT STRIG(1) THEN 2070
2060    GOTO 2020
```

```
2070  POSITION 17,18:? "▲▲▲▲▲▲▲";:POSITION 18,19:? "▲▲▲▲▲
      ▲";:
      POSITION CARPOS,23:? "▲":
2080  GOTO 300
```

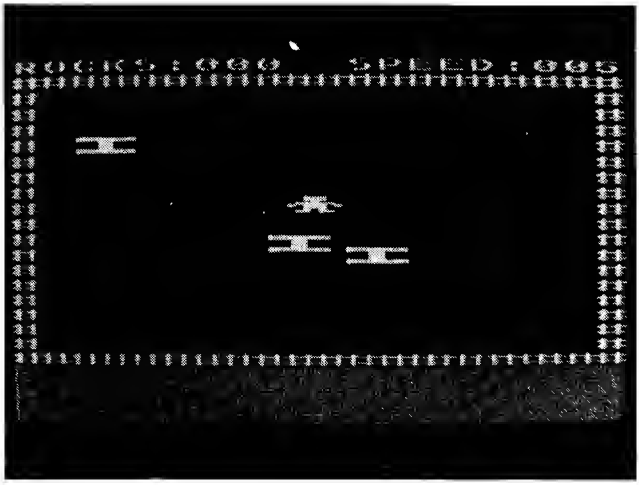
Initialize game

```
20000 POKE 82,1:? CHR$(125):DIM ROAD$(120),CAR$(1)
20010 ROAD$="████████████████████████████████████████▲▲▲▲▲▲
▲▲▲▲████████████████████████████████████████"
20020 CAR$=CHR$(123)
20030 LEFTLIMIT=4
20040 RIGHTLIMIT=30
20050 DIM CODE$(58)
20060 DATA 104,169,176,133,203,169,159,133,204,169,216,133,20
      5,169,159,133,206,162,22,160
20061 DATA 40,177,203,145,205,136,16,249,165,203,56,233,40,13
      3,203,165,204,233,0
20062 DATA 133,204,165,205,56,233,40,133,205,165,206,233,0,13
      3,206,202,16,218,96
20080 FOR X=1 TO 58:READ Y:CODE$(X,X)=CHR$(Y):NEXT X
20090 SETCOLOR 4,8,6
20100 SETCOLOR 2,4,15
21000 POKE 752,0:? :? :? "█████████████████████RACER██████████████
██████████████"
21010 ? :? :? :? "SELECT▲DIFFICULTY▲LEVEL▲(▲1-5)";:INPUT DIFF
      ICULTY
21020 IF DIFFICULTY AND DIFFICULTY>5 THEN ? :? "PLEASE▲....."
      :GOTO 21010
21021 ? :? "STEER▲CAR▲WITH▲JOYSTICK▲2"
21022 ? :? "FORWARD▲=▲FASTER▲▲BACK▲=▲SLOWER":?
21030 ? :? "PRESS▲FIRE▲BUTTON▲TO▲START▲CAR▲MOVING":? :?
21040 ROADPOS=16
21050 SPEED=215
21060 R=53770
21100 POSITION 14,23
21110 ? "█PRESS█START█";
21120 GOSUB 21200:IF F THEN 2000
21130 POSITION 14,23
21140 ? "█PRESS▲START";
21150 GOSUB 21200:IF F THEN 2000
21160 GOTO 21100
21200 F=0:FOR X=0 TO 100
21210 IF PEEK(53279)=6 THEN F=1
21220 NEXT X:RETURN
```

ChexSum Tables

10	=	114
300	=	2154
320	=	1307
330	=	734
350	=	1780
360	=	1447
430	=	2425
440	=	1863
450	=	623
550	=	576
560	=	625
570	=	1776
590	=	1853
600	=	326
610	=	894
1000	=	1557
1010	=	1843
1020	=	632
1030	=	2001
1040	=	2241
1050	=	773
1060	=	130
2000	=	3257
2010	=	1499
2020	=	1143
2030	=	751
2040	=	1783
2050	=	751
2060	=	175
2070	=	1969
2080	=	114
20000	=	1520
20010	=	10262
20020	=	540
20030	=	337
20040	=	380
20050	=	448
20060	=	4020
20061	=	3547
20062	=	3545
20080	=	1921
20090	=	358
20100	=	367
21000	=	6730
21010	=	2516
21020	=	1553
21021	=	1917
21022	=	2364
21030	=	3045
21040	=	353
21050	=	363
21060	=	504
21100	=	296
21110	=	2505
21120	=	467
21130	=	296
21140	=	1097
21150	=	467
21160	=	131
21200	=	634
21210	=	959
21220	=	226
TOTAL	=	92784

ROCKS



CLASSIFICATION: Evasion

Move your ship round the room without crashing into the nasty monsters bouncing off the walls. Every time you hit one the computer will print BANG. Try to live as long as possible

PROGRAMMING SUGGESTIONS

Put obstacles in the path of you and the monsters. Increase the speed of the game.

Program Variables

I	General purpose
X1	X co-ordinate of you
Y1	Y co-ordinate of you
X2	X co-ordinate of rock one
Y2	Y co-ordinate of rock one
X3	X co-ordinate of rock two
Y3	Y co-ordinate of rock two
X4	X co-ordinate of rock three
Y4	Y co-ordinate of rock three

Program Structure

2 - 85	Initialize the program
1ØØ - 13Ø	Data for players
2ØØ - 63Ø	Set up sprites
1ØØØ - 1Ø4Ø	Main loop
2ØØØ - 22Ø5	Move your player
3ØØØ - 5999	Move the rocks
7ØØØ - 8ØØØ	Do collision testing
9ØØØ - 9Ø9Ø	Data for machine language program

Listing

```
2      CLR
6      FOR I=30720 TO 30799:READ A:POKE I,A:NEXT I
7      FOR I=33792 TO 33792+1023:POKE I,0:NEXT I
9      FOR I=28672 TO 29050:READ A:POKE I,A:NEXT I
10     POKE 106,128
20     PM=PEEK(106):PMBASE=PM*256
30     GRAPHICS 1
40     POKE 559,62
50     POKE 53277,3
60     POKE 54279,PM
70     POKE 53256,2
80     POKE 704,77:POKE 705,77:POKE 706,77
85     POKE 707,77
100    DATA 56,56,16,124,186,56,40,108,0,0,0,0,0,0,0,0,0,0,0,0
110    DATA 255,255,24,24,24,24,255,255,0,0,0,0,0,0,0,0,0,0,0,
       0
120    DATA 255,255,24,24,24,24,255,255,0,0,0,0,0,0,0,0,0,0,0,
       0
130    DATA 255,255,24,24,24,24,255,255,0,0,0,0,0,0,0,0,0,0,0,
       0
200    POKE 53256,1
210    POKE 53257,1
220    POKE 53258,1
230    POKE 53259,1
500    X1=140:Y1=100:REM SET PLAYER COOR
510    X2=INT(RND(0)*150):Y2=INT(RND(0)*150)
520    XP2=4:YP2=4
530    X3=INT(RND(0)*150):Y3=INT(RND(1)*150)
540    XP3=4:YP3=4
550    X4=INT(RND(0)*150):Y4=INT(RND(1)*150)
560    XP4=4:YP4=4
570    A=USR(28672,X1,Y1,X2,Y2,X3,Y3,X4,Y4)
600    FOR I=32128 TO 32128+19:POKE I,3:NEXT I
610    FOR I=32128+380 TO 32128+380+19:POKE I,3:NEXT I
620    FOR I=32128 TO 32128+380 STEP 20:POKE I,3:NEXT I
630    FOR I=32128+19 TO 32128+380 STEP 20:POKE I,3:NEXT I
1000   GOSUB 2000:REM MOVE YOU
1010   GOSUB 3000:REM MOVE 1
1020   GOSUB 4000:REM MOVE 2
1030   GOSUB 5000:REM MOVE 3
1035   A=USR(28672,X1,Y1,X2,Y2,X3,Y3,X4,Y4)
1037   GOSUB 7000
1040   GOTO 1000
2000   REM MOVE YOUR PLAYER
2010   POKE 53278,0:A=STICK(1)
2020   IF A=11 THEN GOSUB 2100
2030   IF A=7 THEN GOSUB 2200
2040   RETURN
2100   IF X1<5 THEN RETURN
2105   X1=X1-4:RETURN
2200   IF X1>140 THEN RETURN
2205   X1=X1+4:RETURN
3000   REM MOVE ROCK ONE
3005   IF X2>140 THEN XP2=-4
```

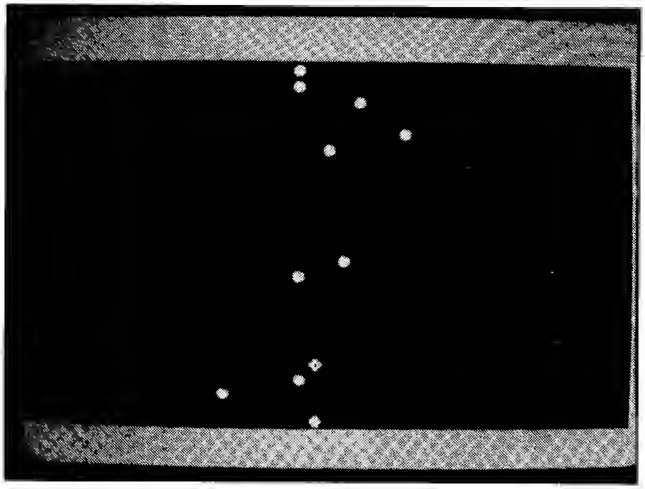
```
3010  IF X2<5 THEN XP2=4
3015  IF Y2>155 THEN YP2=-4
3020  IF Y2<5 THEN YP2=4
3025  X2=X2+XP2:Y2=Y2+YP2:RETURN
4000  REM MOVE ROCK TWO
4005  IF X3>140 THEN XP3=-4
4010  IF X3<5 THEN XP3=4
4015  IF Y3>155 THEN YP3=-4
4020  IF Y3<5 THEN YP3=4
4025  X3=X3+XP3:Y3=Y3+YP3:RETURN
4999  RETURN
5000  REM MOVE ROCK THREE
5005  IF X4>140 THEN XP4=-4
5010  IF X4<5 THEN XP4=4
5015  IF Y4>155 THEN YP4=-4
5020  IF Y4<5 THEN YP4=4
5025  X4=X4+XP4:Y4=Y4+YP4:RETURN
5999  RETURN
7000  REM
7010  IF PEEK(53260)<>0 THEN GOSUB 8000
7020  RETURN
8000  POSITION 0,0:PRINT #6;"":PRINT #6;"#▲▲▲▲▲▲▲BANG"
8010  FOR I=1 TO 200:NEXT I:POSITION 0,1:PRINT #6;"#▲▲▲▲▲▲▲
      ▲▲▲▲▲▲▲▲▲";
8020  POKE 53278,0:RETURN
9000  DATA 104,104,104,141,61,113,104,104,141,60,113,104,104,
      141,75,113,104,104,141,74
9005  DATA 113,104,104,141,89,113,104,104,141,88,113,104,104,
      141,103,113,104,104,141,102
9010  DATA 113,32,45,112,96,120,32,8,113,160,14,162,0,189,53,
      113,149,176,232,136
9015  DATA 208,247,32,170,112,160,14,162,0,181,176,157,53,113
      ,232,136,208,247,160,14
9020  DATA 162,0,189,67,113,149,176,232,136,208,247,32,170,11
      2,160,14,162,0,181,176
9025  DATA 157,67,113,232,136,208,247,160,14,162,0,189,81,113
      ,149,176,232,136,208,247
9030  DATA 32,170,112,160,14,162,0,181,176,157,81,113,232,136
      ,208,247,160,14,162,0
9035  DATA 189,95,113,149,176,232,136,208,247,32,170,112,160,
      14,162,0,181,176,157,95
9040  DATA 113,232,136,208,247,32,22,113,88,96,165,183,197,18
      2,240,68,160,0,165,184
9045  DATA 24,105,46,145,176,169,32,24,101,162,168,166,185,16
      9,0,145,178,200,202,16
9050  DATA 250,169,32,24,101,183,141,116,113,162,0,142,109,11
      3,166,185,172,109,113,177
9055  DATA 180,238,109,113,172,116,113,145,178,238,116,113,20
      2,16,237,165,183,133,182,165
9060  DATA 184,133,189,96,165,184,197,189,208,182,96,173,112,
      113,41,15,170,189,36,113
9065  DATA 238,112,113,96,160,14,162,0,181,176,157,117,113,23
      2,136,208,247,96,160,14
9070  DATA 162,0,189,117,113,149,176,232,136,208,247,96,1,2,3
      ,4,5,10,7,8
9075  DATA 7,8,11,4,2,4,1,4,8,0,208,0,132,0,120,0,0,0,8,0
```

```
9080  DATA 16,0,0,1,208,0,133,20,120,0,0,0,8,0,16,0,0,2,208.0
9085  DATA 134,40,120,0,0,0,8,0,16,0,0,3,208,0,135,60,120,0,0
      ,0
9090  DATA 8.0,0,0,0,0,0,79,0,0,0,0,0,0,0,0,141,30,208
```

ChexSum Tables

2	=	40	620	=	1464	5020	=	667
6	=	1356	630	=	1620	5025	=	1270
7	=	1421	1000	=	918	5999	=	58
9	=	1627	1010	=	728	7010	=	756
10	=	277	1020	=	745	7020	=	58
20	=	1124	1030	=	762	8000	=	1160
30	=	144	1035	=	2321	8010	=	1723
40	=	420	1037	=	225	8020	=	420
50	=	406	1040	=	127	9000	=	3800
60	=	473	2010	=	887	9005	=	3900
70	=	372	2020	=	463	9010	=	3548
80	=	1169	2030	=	454	9015	=	3747
85	=	361	2040	=	58	9020	=	3711
100	=	2555	2100	=	357	9025	=	3824
110	=	2600	2105	=	581	9030	=	3638
120	=	2600	2200	=	419	9035	=	3778
130	=	2600	2205	=	580	9040	=	3730
200	=	371	3005	=	766	9045	=	3719
210	=	372	3010	=	649	9050	=	3845
220	=	373	3015	=	789	9055	=	4013
230	=	374	3020	=	651	9060	=	3852
500	=	2022	3025	=	1222	9065	=	3760
510	=	1696	4005	=	774	9070	=	3163
520	=	704	4010	=	657	9075	=	2355
530	=	1769	4015	=	797	9080	=	2537
540	=	712	4020	=	659	9085	=	2637
550	=	1777	4025	=	1246	9090	=	2191
560	=	720	4999	=	58			
570	=	2321	5005	=	782			
600	=	1205	5010	=	665	TOTAL	=	130781
610	=	1731	5015	=	805			

SNOWBALL



CLASSIFICATION: Evasion

Use joystick to move the man left and right. Shoot snowballs before they land by pressing the fire button.

PROGRAMMING SUGGESTIONS

Make the snowballs travel down the screen in random paths instead of straigh lines.

Program Variables

A	Local to set up USR routine
BALL$	Code for snowballs
BALLPOS	Ball position
CODE$	Holds machine code screen scroll routine
DIR	Direction group moves
FIREFLAG	=1 if missile fired
GROUP	Base position for snowballs
HITS	Counts hits
L	Local
LEVEL	Difficulty level
MISSILE$	String for missile
MISSX	Missile X co-ordinate
MISSY	Missile Y co-ordinate
PLAYERPOS	Position of player
SCORE	Score
SCREEN	Address of first byte of video RAM
SPACE$	4Ø spaces
T	Local
X	Local

Program Structure

1 - 3	Set the colors
1Ø	Switch off cursor and jump to initialize
1ØØ - 28Ø	Main loop
1ØØØ - 1Ø6Ø	The hit routine
2ØØØ - 2Ø6Ø	The die routine
3ØØØ	Overrun by a snowball
3Ø1Ø - 3Ø3Ø	Start the game
2ØØØØ - 21Ø1Ø	Initialize the game

Listing

```
1       SETCOLOR 1,0,15
2       SETCOLOR 4,0,9
3       SETCOLOR 2,0,0
10      POKE 752,1:POKE 82,0:GOTO 20000
```

Main loop

```
100     POSITION 0,0:? SPACE$
102     GROUP=GROUP+DIR:IF GROUP<0 THEN GROUP=0:DIR=-DIR
103     IF GROUP>29 THEN GROUP=29:DIR=-DIR
110     IF LEVEL>RND(0)*20 THEN POSITION RND(0)*10+GROUP,0:? BA
        LL$;:HITS=HITS-1:IF HITS<0 THEN 3000
130     X=STICK(1):IF X=11 AND PLAYERPOS>1 THEN PLAYERPOS=PLAYE
        RPOS-1
140     IF X=7 AND PLAYERPOS<38 THEN PLAYERPOS=PLAYERPOS+1
150     IF ( NOT STRIG(1)) AND ( NOT FIREFLAG) THEN FIREFLAG=1:
        MISSX=PLAYERPOS:MISSY=22
```

Put missile if required

```
200     IF FIREFLAG THEN POKE SCREEN+MISSX+40*MISSY,0
210     A=USR(ADR(CODE$))
220     IF PEEK(SCREEN+920+PLAYERPOS) THEN 2000
230     POKE SCREEN+920+PLAYERPOS,123
240     IF FIREFLAG AND PEEK(SCREEN+MISSX+(40*MISSY)) THEN GOSU
        B 1000
250     IF FIREFLAG THEN MISSY=MISSY-1:IF MISSY=-1 THEN FIREFLA
        G=0
260     IF FIREFLAG AND PEEK(SCREEN+MISSX+(40*MISSY)) THEN GOSU
        B 1000
270     IF FIREFLAG THEN POKE SCREEN+MISSX+40*MISSY,80
280     GOTO 100
```

The hit routine

```
1000    L=SCREEN+MISSX+40*MISSY:FOR X=0 TO 32
1020    POKE L,X
1040    SOUND 0,255-7*X,10,8
1050    NEXT X:SOUND 0,0,0,0:POKE L,0
1060    HITS=HITS+1:SCORE=SCORE+1:FIREFLAG=0:RETURN
```

The die routine

```
2000  FOR X=0 TO 255:SOUND 0,X,10,8:SOUND 1,X+128,10,8:SOUND
      2,X+2,10,8:SOUND 3,X+3,10,8:NEXT X
2010  FOR X=255 TO 0 STEP -6:SOUND 0,X,10,8:SOUND 1,X+1,10,8:
      NEXT X
2020  FOR X=0 TO 3:SOUND X,0,0,0:NEXT X
2030  FOR X=15 TO 0 STEP -1:SOUND 0,50,0,X:FOR Y=1 TO 4:NEXT
      Y:NEXT X
2040  FOR X=0 TO 23:? :NEXT X
2050  ? :? :? "A▲SNOWBALL▲HAS▲LANDED▲ON▲YOUR▲HEAD":? :? "AND▲
      YOUR▲BRAIN▲FREEZES":FOR X=1 TO 1000:NEXT X
2060  ? :? :? "SCORE▲";SCORE:? :? "LEVEL▲";LEVEL:? :? :GOTO 3
      010
```

Overrun by a snowball

```
3000  FOR X=1 TO 30:? :NEXT X:? CHR$(125):? :? :? :? "60▲SNOW
      BALLS▲HAVE▲LANDED":? :? :? "SCORE=";SCORE:? :? "AT▲LEVE
      L▲";LEVEL
3010  ? :? "PRESS▲FIRE▲FOR▲ANOTHER▲GAME"
3020  IF STRIG(1) THEN 3020
3030  RUN
```

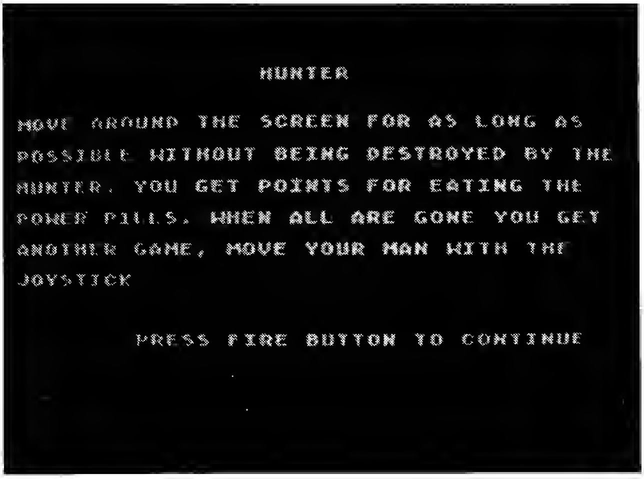
Initialize the game

```
20000 DIM CODE$(58),BALL$(1),SPACE$(40).MISSILE$(1)
20011 BALLPOS=20:BALL$=CHR$(20):MISSILE$=CHR$(16)
20012 SPACE$="▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲
      ▲▲▲▲▲"
20013 SCREEN=40000
20014 DIR=0.25
20015 SCORE=0
20016 HITS=60
20030 REM
20040 ? CHR$(125)
20041 ? :? :? :? "LEVEL▲";:INPUT LEVEL:? :?
20050 ? "USE▲JOYSTICK▲2":? :? :? "PRESS▲FIRE▲TO▲START▲GAME"
20060 DATA 104,169,176,133,203,169,159,133,204,169,216,133,20
      5,169,159,133,206,162,22,160
20061 DATA 40,177,203,145,205,136,16,249,165,203,56,233,40,13
      3,203,165,204,233,0
20062 DATA 133,204,165,205,56,233,40,133,205,165,206,233,0,13
      3,206,202,16,218,96
20070 FOR X=1 TO 58:READ T:CODE$(X,X)=CHR$(T):NEXT X
21000 IF STRIG(1) THEN 21000
21001 PLAYERPOS=20:FIREFLAG=0
21002 ? CHR$(125)
21003 IF  NOT STRIG(1) THEN 21003
21010 GOTO 100
```

ChexSum Tables

```
    1  =  298          280  =  112          20012  =  1585
    2  =  289         1000  =  1344         20013  =  344
    3  =  214         1020  =  347          20014  =  365
   10  =  809         1040  =  779          20015  =  278
  100  =  326         1050  =  664          20016  =  428
  102  =  1550        1060  =  1469         20040  =  343
  103  =  1178        2000  =  3558         20041  =  1103
  110  =  2481        2010  =  2082         20050  =  3057
  130  =  1704        2020  =  898          20060  =  4020
  140  =  1176        2030  =  2001         20061  =  3547
  150  =  1959        2040  =  640          20062  =  3545
  200  =  952         2050  =  5158         20070  =  1955
  210  =  736         2060  =  2006         21000  =  419
  220  =  807         3000  =  5400         21001  =  662
  230  =  654         3010  =  2063         21002  =  343
  240  =  1302        3020  =  480          21003  =  462
  250  =  1393        3030  =  59           21010  =  112
  260  =  1302       20000  =  1520
  270  =  1144       20011  =  1507         TOTAL  =  74929
```

HUNTER



```
                    HUNTER

MOVE AROUND THE SCREEN FOR AS LONG AS
POSSIBLE WITHOUT BEING DESTROYED BY THE
HUNTER. YOU GET POINTS FOR EATING THE
POWER PILLS. WHEN ALL ARE GONE YOU GET
ANOTHER GAME, MOVE YOUR MAN WITH THE
JOYSTICK

        PRESS FIRE BUTTON TO CONTINUE
```

CLASSIFICATION: Invader/Evasion

You are a wild animal being pursued by a hunter. You move around the maze using the joystick on port one. No matter where you are in the maze, the hunter will know where you are and seek you out. As you move through the maze you eat munchies. When you have eaten all the munchies, you win. There are four levels.

PROGRAMMING SUGGESTIONS

Add a facility at the hardest level of the game so that the player can 'teleport' to another part of the board. However make it so that he cannot control his destination.

Program Variables

JL	Screen value of block character
SP	Screen value of blank character
DO	Screen value of power pill
C1	Column position of hunter
R1	Row position of hunter
R	Row position of animal
C	Column position of animal
A	Joystick direction
CN	Number of power pills eaten

Program Structure

15 - 4∅	Initialization
5∅ - 2∅∅	Draw borders, maze and power pills
21∅ - 56∅	Move your piece up, down, left and right
57∅ - 87∅	You ran into the hunter; you won the game

Listing

```
1       SETCOLOR 2,1,3:POKE 752,1
```

Initialization

```
15      CLR :DIM A$(4),B$(1),C$(3),E$(3),CC$(40),RR$(24),DR$(1)
        ,TAB$(40),F$(32)
16      DIM D$(30)
20      PRINT CHR$(125);
21      POKE 82,0
22      DR$(1)="➔":JL=128:REM SET BLOCK CHARACTER
23      SP=0:REM SET ASCII VALUE OF SPACE CHARACTER
24      DO=84:REM ASCII VALUE OF POWER PILL
25      FOR I=1 TO 40:TAB$(I,I)=DR$:NEXT I
26      YO=10:REM ASCII VALUE OF YOUR PLAYER
27      MO=56:REM ASCII VALUE OF MONSTER
30      GOSUB 710
40      GOSUB 850
```

Draw borders, maze and power pills

```
50      PRINT CHR$(125);
60      SC=40000:CO=0:BE=SC+207
70      A$(1,2)="██":B$(1,1)="▲":C$(1,2)=A$:C$(3,3)=B$
80      E$(1,3)="▲▲●"
90      FOR I=1 TO 40:CC$(I,I)="➔":NEXT I
100     FOR I=1 TO 24:RR$(I,I)="⬇":NEXT I
110     FOR I=SC TO SC+39:POKE I,128:POKE I+920,128:NEXT I
120     FOR I=SC TO SC+999 STEP 40:POKE I,128:POKE I+39,128:NEX
        T I
130     POSITION 0,0:PRINT TAB$(1,18);"HUNTER";
140     FOR I=1 TO 25 STEP 3:F$(I,I+2)=E$:NEXT I
150     FOR I=1 TO 30 STEP 3:D$(I,I+2)=C$:NEXT I:PRINT :PRINT :
        PRINT :PRINT :PRINT
160     FOR I=1 TO 5:PRINT TAB$(1,7);D$:PRINT TAB$(1,7);D$:PRIN
        T TAB$(1,7);F$:NEXT I
170     PRINT TAB$(1,7);D$:PRINT TAB$(1,7);D$
180     R=2:C=0:POKE SC,128
190     PO=BE+(R*40)+C:POKE PO,YO
200     C1=26:R1=16:P1=BE+(R1*40)+C1:VE=PEEK(P1):POKE P1,MO
```

Move your piece up, down, left and right

```
210     A=STICK(1):IF A=14 THEN GOSUB 370
220     IF A=13 THEN GOSUB 420
230     IF A=11 THEN GOSUB 470
```

```
240   IF A=7 THEN GOSUB 520
250   GOSUB 290
260   IF CN=45 THEN GOSUB 640:GOTO 10
270   POSITION 16,3:PRINT "SCORE ";S1;
280   GOTO 210
290   IF SW<>AW THEN SW=SW+1:RETURN
300   SW=0
310   PC=P1:IF C1<C THEN C2=C1:C1=C1+1:P1=BE+(R1*40)+C1:IF PE
      EK(P1)=JL THEN C1=C2:P1=PC
320   IF C1>C THEN C2=C1:C1=C1-1:P1=BE+(R1*40)+C1:IF PEEK(P1)
      =JL THEN C1=C2:P1=PC
330   IF R1<R THEN R2=R1:R1=R1+1:P1=BE+(R1*40)+C1:IF PEEK(P1)
      =JL THEN R1=R2:P1=PC
340   IF R1>R THEN R2=R1:R1=R1-1:P1=BE+(R1*40)+C1:IF PEEK(P1)
      =JL THEN R1=R2:P1=PC
350   POKE PC,VE:VE=PEEK(P1):IF VE=YO THEN GOSUB 600:GOTO 10
360   POKE P1,MO:RETURN
370   IF R=0 THEN RETURN
380   T1=PO:R=R-1:PO=BE+(R*40)+C:IF PEEK(PO)=JL THEN PO=T1:R=
      R+1:RETURN
390   IF PEEK(PO)=13 THEN GOSUB 570
400   IF PEEK(PO)=DO THEN S1=S1+1:CN=CN+1
410   POKE T1,SP:POKE PO,YO:RETURN
420   IF R=16 THEN RETURN
430   T1=PO:R=R+1:PO=BE+(R*40)+C:IF PEEK(PO)=JL THEN PO=T1:R=
      R-1:RETURN
440   IF PEEK(PO)=DO THEN S1=S1+1:CN=CN+1
450   IF PEEK(PO)=MO THEN GOSUB 570
460   POKE T1,SP:POKE PO,YO:RETURN
470   IF C=0 THEN RETURN
480   T1=PO:C=C-1:PO=BE+(R*40)+C:IF PEEK(PO)=JL THEN C=C+1:PO
      =T1:RETURN
490   IF PEEK(PO)=DO THEN CN=CN+1:S1=S1+1
500   IF PEEK(PO)=MO THEN GOSUB 570
510   POKE T1,SP:POKE PO,YO:RETURN
520   IF C=28 THEN RETURN
530   T1=PO:C=C+1:PO=BE+(R*40)+C:IF PEEK(PO)=JL THEN C=C-1:PO
      =T1:RETURN
540   IF PEEK(PO)=DO THEN CN=CN+1:S1=S1+1
550   IF PEEK(PO)=MO THEN GOSUB 570
560   POKE T1,SP:POKE PO,YO:RETURN
```

You ran into the hunter;
you won the game

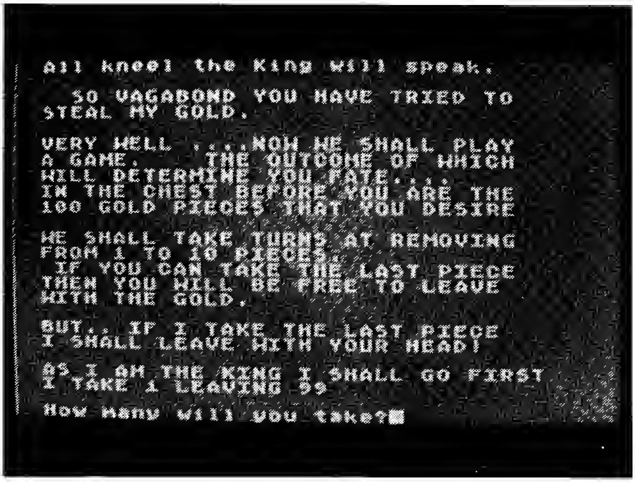
```
570   PRINT CHR$(125);:PRINT "YOU▲RAN▲STRAIGHT▲INTO▲THE▲HUNTE
      R!!!"
580   PRINT :PRINT :PRINT TAB$(1,13);"YOU▲ATE▲";CN
590   PRINT :PRINT :GOSUB 680:GOTO 10
600   PRINT CHR$(125);:PRINT "▲▲▲YOU▲WERE▲CAPTURED▲BY▲THE▲HUN
      TER!!!!!!":PRINT :PRINT
610   PRINT TAB$(1,10);"YOU▲ATE▲";CN;"▲POWER▲PILLS":PRINT :PR
      INT
620   GOSUB 680
630   RETURN
640   PRINT CHR$(125);
650   PRINT CHR$(125);TAB$(1,13);"CONGRATULATIONS"
```

```
660   PRINT :PRINT :PRINT :PRINT TAB$(1,5);"YOU▲HAVE▲COMPLETE
      D▲LEVEL:";TY
670   PRINT :PRINT :GOSUB 680:RETURN
680   PRINT TAB$(1,8);"PRESS▲FIRE▲BUTTON▲TO▲CONTINUE";:FOR I=
      1 TO 20:A=STRIG(1):NEXT I
690   A=STRIG(1):IF A=1 THEN 690
700   RETURN
710   PRINT CHR$(125);:PRINT TAB$(1,16);"HUNTER"
720   PRINT :PRINT :PRINT "MOVE▲AROUND▲THE▲SCREEN▲FOR▲AS▲LONG
      ▲AS":PRINT
730   PRINT "POSSIBLE▲WITHOUT▲BEING▲DESTROYED▲BY▲THE":PRINT
740   PRINT "HUNTER.▲YOU▲GET▲POINTS▲FOR▲EATING▲THE":PRINT
750   PRINT "POWER▲PILLS.▲WHEN▲ALL▲ARE▲GONE▲YOU▲GET":PRINT
760   PRINT "ANOTHER▲GAME,▲MOVE▲YOUR▲MAN▲WITH▲THE":PRINT
770   PRINT "JOYSTICK":PRINT
780   PRINT :PRINT
830   GOSUB 680
840   RETURN
850   PRINT CHR$(125);:PRINT "DIFFICULTY▲LEVEL▲(1-4)";
860   INPUT A$:IF A$<"1" OR A$>"4" THEN 860
870   TY=VAL(A$):AW=4-TY:RETURN
```

ChexSum Tables

1	=	709	240	=	482	560	=	821
15	=	3374	250	=	259	570	=	2875
16	=	408	260	=	737	580	=	1435
20	=	356	270	=	1752	590	=	532
21	=	293	280	=	129	600	=	3226
22	=	2413	290	=	1035	610	=	2390
23	=	2783	300	=	292	620	=	247
24	=	2388	310	=	4542	630	=	58
25	=	1534	320	=	4063	640	=	356
26	=	2369	330	=	4067	650	=	2026
27	=	2160	340	=	4069	660	=	2739
30	=	136	350	=	1703	670	=	457
40	=	201	360	=	434	680	=	4071
50	=	356	370	=	305	690	=	1128
60	=	1229	380	=	3875	700	=	58
70	=	3146	390	=	744	710	=	1440
80	=	674	400	=	1689	720	=	2872
90	=	1448	410	=	821	730	=	2971
100	=	1419	420	=	391	740	=	2764
110	=	1825	430	=	3875	750	=	2776
120	=	2138	440	=	1689	760	=	2658
130	=	1225	450	=	784	770	=	772
140	=	1761	460	=	821	780	=	115
150	=	2347	470	=	306	830	=	247
160	=	2879	480	=	3887	840	=	58
170	=	1387	490	=	1689	850	=	1933
180	=	1028	500	=	784	860	=	949
190	=	1439	510	=	821	870	=	1250
200	=	2966	520	=	410			
210	=	1154	530	=	3887			
220	=	493	540	=	1689	TOTAL	=	144648
230	=	571	550	=	784			

TAKEAWAY



```
All kneel the King will speak.
  SO VAGABOND YOU HAVE TRIED TO
STEAL MY GOLD.

VERY WELL ....NOW WE SHALL PLAY
A GAME.  THE OUTCOME OF WHICH
WILL DETERMINE YOU FATE....
IN THE CHEST BEFORE YOU ARE THE
100 GOLD PIECES THAT YOU DESIRE

WE SHALL TAKE TURNS AT REMOVING
FROM 1 TO 10 PIECES.
 IF YOU CAN TAKE THE LAST PIECE
THEN YOU WILL BE FREE TO LEAVE
WITH THE GOLD.

BUT.. IF I TAKE THE LAST PIECE
I SHALL LEAVE WITH YOUR HEAD!

AS I AM THE KING I SHALL GO FIRST
I TAKE 1 LEAVING 99
How many will you take?
```

CLASSIFICATION: Logic

You and the computer take turns at removing gold pieces from a chest. The player with no pieces to remove loses his head. The game is self prompting. Note: The game can't lose. Use this to show your friends how 'smart' your computer is.

PROGRAMMING SUGGESTIONS

Music for introduction page. More ancient sounding insults etc.

Program Variables

CHEAT	Counts number of times player attempts to cheat
FLAG	Flag
GOLD	Number of gold pieces remaining
R	Local
R$	Local string
TAKE	Number of piece's taken by player
X,Y,Z	Used in z=x mod y routine

Program Structure

1Ø	Initialize the game
2Ø - 13Ø	Introductory text
1ØØØ - 1Ø6Ø	Player'sturn
1Ø7Ø - 113Ø	Machine's turn
3ØØØ - 3Ø4Ø	X mod Y routine
5ØØØ - 5Ø5Ø	Cheat routine
6ØØØ - 7Ø4Ø	Game end
8ØØØ	You have attempted to cheat three times
9ØØØ - 9Ø6Ø	Insult routine

Listing

Initialize the game

```
10     ? CHR$(125)::DIM R$(20):CHEAT=0:FLAG=0
20     ? "All▲kneel▲the▲king▲will▲speak.":?
30     ? "▲▲SO▲VAGABOND▲YOU▲HAVE▲TRIED▲TO"
40     ? "STEAL▲MY▲GOLD."
50     ? :? "VERY▲WELL▲....NOW▲WE▲SHALL▲PLAY"
60     ? "A▲GAME.▲▲▲▲THE▲OUTCOME▲OF▲WHICH"
70     ? "WILL▲DETERMINE▲YOU▲FATE...."
80     ? "IN▲THE▲CHEST▲BEFORE▲YOU▲ARE▲THE":? "100▲GOLD▲PIECES▲
       THAT▲YOU▲DESIRE"
90     ? :? "WE▲SHALL▲TAKE▲TURNS▲AT▲REMOVING"
100    ? "FROM▲1▲TO▲10▲PIECES."
110    ? "▲IF▲YOU▲CAN▲TAKE▲THE▲LAST▲PIECE":? "THEN▲YOU▲WILL▲BE
       ▲FREE▲TO▲LEAVE"
120    ? "WITH▲THE▲GOLD.":? :? "BUT..▲IF▲I▲TAKE▲THE▲LAST▲PIECE
       ":? "I▲SHALL▲LEAVE▲WITH▲YOUR▲HEAD!"
130    ? :? "AS▲I▲AM▲THE▲KING▲I▲SHALL▲GO▲FIRST":? "I▲TAKE▲1▲LE
       AVING▲99"
```

Player turn

```
1000   GOLD=99
1020   IF CHEAT=3 THEN 8000
1025   GOSUB 9000:? :? "How▲many▲will▲you▲take";:INPUT TAKE:?
1030   IF TAKE>GOLD THEN GOSUB 5000:GOTO 1020
1040   IF TAKE>10 THEN GOSUB 5000:GOTO 1020
1050   GOLD=GOLD-TAKE
1060   ? "You▲have▲taken▲";TAKE;"▲leaving▲";GOLD:?
1070   ? "We▲will▲take▲";
1080   X=GOLD:Y=11:GOSUB 3000
1090   ? Z
1100   GOLD=GOLD-Z
1110   ? "Which▲leaves▲";GOLD
1120   IF GOLD=0 THEN 6000
1130   ? :? :GOTO 1020
```

X mod Y routine

```
3000   Z=X/Y
3010   Z=Z-INT(Z)
3020   Z=Z+1/(Y*10)
3030   Z=INT(Z*Y)
3040   RETURN
```

Cheat routine

```
5000  CHEAT=CHEAT+1:? :? :? :R=INT(RND(0)*4):ON R GOTO 5020,5
      030,5040,5050
5010  ? "THOU▲CHEAT...▲TAKE▲CARE!!!":RETURN
5020  ? "BE▲THOU▲BLIND▲OR▲FOOLISH":RETURN
5030  ? "HAVE▲THY▲WITS▲FLED▲THEE":RETURN
5040  ? "THOU▲CONSPIRE▲TO▲DEFRAUD▲ME..":? "THEE▲SON▲OF▲A▲CEPH
      ALOPOD.":RETURN
5050  ? "GUARD▲THY▲HONOUR▲THOU▲VARLET.":RETURN
```

Game end

```
6000  ? :? :? "WHICH▲MEANS▲THAT▲I▲HAVE▲WON..."
6010  ? :? :? "OFF▲WITH▲HIS▲HEAD!!!!"
6020  ? "Are▲there▲any▲other▲theives"
6030  ? "wishing▲to▲play▲the▲Kings▲game":? :? "Y▲OR▲N":INPUT
      R$
6040  IF R$="N" OR R$="n" THEN 7000
6050  IF R$="Y" OR R$="y" THEN RUN
6060  GOSUB 5030:? :GOTO 6020
```

Final message

```
7000  ? :? :? "It▲is▲well▲that▲you▲have▲declined":? "to▲play▲
      the▲King."
7010  ? "As▲a▲palace▲guard▲I▲will▲tell▲you":? "that▲the▲King▲
      NEVER▲loses."
7020  ? :? "The▲King▲can t▲lose....."
7030  ? :? :? "FAREWELL...."
7040  END
```

You have attempted to cheat three times

```
8000  ? :? :? "YOU▲HAVE▲ANGERED▲ME▲WITH▲YOUR":? "FOOLISH▲ATTE
      MPTS▲TO▲CHEAT!!":? :? :GOTO 6010
```

Insult routine

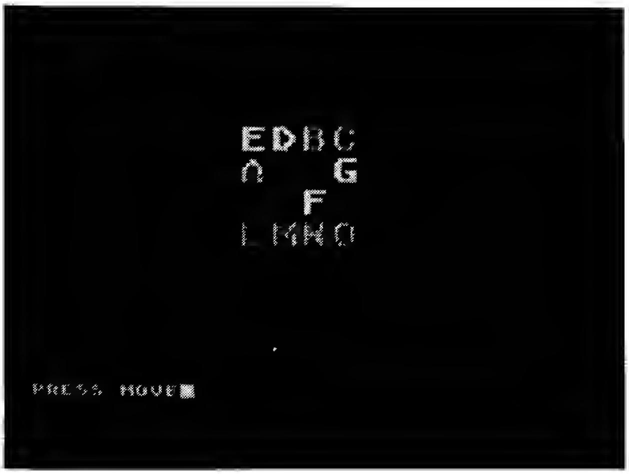
```
9000  IF FLAG=0 THEN FLAG=1:RETURN
9010  X=INT(RND(0)*5):ON X GOTO 9030,9040,9050,9060
9020  ? "Thy▲doom▲draws▲closer.":RETURN
9030  ? "Hast▲thy▲will▲been▲drawn?":RETURN
```

```
9040  ? "Choose▲thou▲noxious▲vermin.":RETURN
9050  ? "Thee▲suffer▲nympholepsy.":RETURN
9060  ? "Halt▲thy▲procrastination▲whelp.":RETURN
```

ChexSum Tables

10	=	1396	1080	=	944	6040	=	868
20	=	2908	1090	=	197	6050	=	756
30	=	2156	1100	=	556	6060	=	580
40	=	1038	1110	=	1445	7000	=	5031
50	=	2270	1120	=	410	7010	=	5479
60	=	2042	1130	=	307	7020	=	2100
70	=	1906	3000	=	562	7030	=	1022
80	=	4403	3010	=	746	7040	=	43
90	=	2367	3020	=	897	8000	=	4890
100	=	1329	3030	=	743	9000	=	655
110	=	4314	3040	=	58	9010	=	2248
120	=	5331	5000	=	2750	9020	=	2263
130	=	3679	5010	=	1782	9030	=	2516
1000	=	483	5020	=	1829	9040	=	2855
1020	=	507	5030	=	1759	9050	=	2567
1025	=	2885	5040	=	4023	9060	=	3258
1030	=	728	5050	=	2249			
1040	=	703	6000	=	2235			
1050	=	553	6010	=	1527	TOTAL	=	113564
1060	=	2714	6020	=	2682			
1070	=	1256	6030	=	3764			

SORTGAME



```
EDBC
A  G
  F
LMNO




PRESS MOVE
```

CLASSIFICATION: Strategy

Object of game is to unscramble the board in the smallest possible number of moves. To make a move press the key that corresponds to the letter on the board that you wish to move.

PROGRAMMING SUGGESTIONS

The scramble routine could be sped up considerably by resorting to machine language.

Program Variables

A	Local
BOARD()	Holds board
CHR	Screen code for letters
DL	Local
M	Local
M1	Local
M2	Local
MOVES	Number of times board altered
MV	Local
SLOC	Address of video RAM
TOTAL	Count of moves made
VALID	Flags valid move
WHAT	Holds what to do from menu
X1	Local
Y	Local
Y1	Local
Z	Local

Program Structure

1∅	Jump to initialize routine
9∅	Select graphics mode
1∅∅ - 3∅∅	Main loop
1∅∅∅ - 1∅5∅	End game
5∅∅∅ - 511∅	Draw board in GR.∅
6∅∅∅ - 611∅	Draw board in GR.2
7∅∅∅ - 7∅8∅	Make a move
2∅∅∅∅ - 2216∅	Initialize the system

Listing

```
10      OPEN #1.4.0,"K:":GOTO 20000
```

Select graphics mode

```
90      GRAPHICS 2
```

Main loop

```
100     GOSUB 6000
110     ? CHR$(125)
111     SETCOLOR 4,3,3
120     ? "PRESS▲MOVE";
130     GET #1,A
140     M=A-64
150     IF M<1 OR M>15 THEN 100
160     GOSUB 7000
180     IF VALID THEN TOTAL=TOTAL+1
200     Z=0:FOR X=1 TO 4:FOR Y=1 TO 4:IF BOARD(X,Y)<>Z THEN X=4
        :Y=4
210     Z=Z+1:NEXT Y:NEXT X
220     IF Z=16 THEN 1000
300     GOTO 100
```

End game

```
1000    GRAPHICS 0:GOSUB 5000
1010    POSITION 4,10:? "COMPLETED▲IN▲";TOTAL;"▲MOVES":IF MOVES
        =TOTAL THEN ? "PERFECT!"
1020    ? :? :? "PRESS▲<RETURN>▲FOR▲ANOTHER▲GAME"
1030    GET #1,A
1040    IF A<>155 THEN 1030
1050    RUN
```

Draw board in GR.0

```
5000    ? CHR$(125)
5010    FOR X=1 TO 4
5060    FOR Y=1 TO 4
5070    Z=BOARD(X,Y):IF Z=0 THEN ? "▲▲";
5080    IF Z THEN ? CHR$(64+Z);"▲";
5090    NEXT Y:?
5100    NEXT X
5110    RETURN
```

Draw board in GR.2

```
6000  DL=PEEK(560)+PEEK(561)*256:SLOC=PEEK(DL+4)+PEEK(DL+5)*2
      56
6010  FOR X=1 TO 4
6060  FOR Y=1 TO 4
6070  Z=BOARD(X,Y):IF Z=0 THEN CHR=0
6080  IF Z THEN CHR=Z+32+(INT(Z/4)*64)
6090  POKE X*20+Y+SLOC+7+20,CHR
6100  NEXT Y:NEXT X
6110  RETURN
```

Make a move

```
7000  VALID=1
7010  FOR X=1 TO 4:FOR Y=1 TO 4:IF BOARD(X,Y)=M THEN X1=X:Y1=
      Y
7020  NEXT Y:NEXT X
7040  IF BOARD(X1-1,Y1)=0 THEN BOARD(X1-1,Y1)=M:BOARD(X1,Y1)=
      0:RETURN
7050  IF BOARD(X1+1,Y1)=0 THEN BOARD(X1+1,Y1)=M:BOARD(X1,Y1)=
      0:RETURN
7060  IF BOARD(X1,Y1+1)=0 THEN BOARD(X1,Y1+1)=M:BOARD(X1,Y1)=
      0:RETURN
7070  IF BOARD(X1,Y1-1)=0 THEN BOARD(X1,Y1-1)=M:BOARD(X1,Y1)=
      0:RETURN
7080  VALID=0:RETURN
```

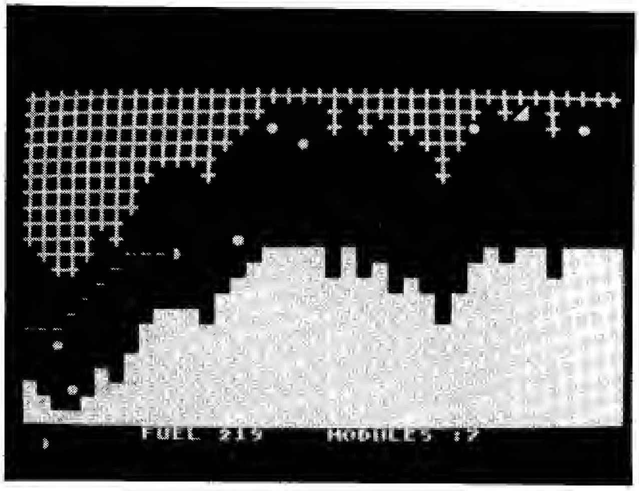
Initialize the system

```
20000 DIM BOARD(5,5):FOR X=0 TO 5:FOR Y=0 TO 5:BOARD(X,Y)=99:
      NEXT Y:NEXT X
20010 Z=0:FOR X=1 TO 4:FOR Y=1 TO 4
20020 BOARD(X,Y)=Z:Z=Z+1:NEXT Y:NEXT X
21000 GRAPHICS 0:? CHR$(125):? :? :? "SELECT":? :? :? "▲▲1▲=▲
      NEW▲BOARD":? :? "▲▲2▲=▲SCRAMBLE▲DISPLAY":?
21010 ? "▲▲3▲=▲SCRAMBLE":? :INPUT WHAT:IF WHAT<1 OR WHAT>3 TH
      EN 21000
22000 TOTAL=0:IF WHAT=1 THEN 90
22010 ? :? "HOW▲MANY▲MOVES▲TO▲SCRAMBLE";:INPUT MOVES
22020 GRAPHICS 2
22100 M1=0:M2=0:FOR MV=1 TO MOVES
22110 M=INT(RND(0)*15)+1:IF M=M1 OR M=M2 THEN 22110
22120 GOSUB 7000:IF VALID=0 THEN 22110
22130 M2=M1:M1=M
22140 IF WHAT=2 THEN GOSUB 6000
22150 NEXT MV
22160 GOTO 90
```

ChexSum Tables

10 = 609	5000 = 343	7060 = 2659
90 = 145	5010 = 394	7070 = 2661
100 = 209	5060 = 395	7080 = 339
110 = 343	5070 = 1251	20000 = 2761
111 = 350	5080 = 856	20010 = 1142
120 = 848	5090 = 235	20020 = 1735
130 = 316	5100 = 164	21000 = 4317
140 = 594	5110 = 58	21010 = 1955
150 = 678	6000 = 2632	22000 = 832
160 = 225	6010 = 394	22010 = 2239
180 = 684	6060 = 395	22020 = 145
200 = 2803	6070 = 1365	22100 = 1081
210 = 872	6080 = 1540	22110 = 1765
220 = 417	6090 = 1104	22120 = 621
300 = 112	6100 = 338	22130 = 814
1000 = 293	6110 = 58	22140 = 524
1010 = 3000	7000 = 330	22150 = 176
1020 = 2451	7010 = 2555	22160 = 254
1030 = 316	7020 = 338	
1040 = 522	7040 = 2661	
1050 = 59	7050 = 2659	TOTAL = 61931

SLEFT



CLASSIFICATION: Evasion

The object of the game is to collect as many modules as possible. You also need to avoid mines, the roof and floor of the cave, and running out of fuel. Hitting a mine (solid circle) loses one man. Hitting a fuel container (*) adds 5Ø to your fuel. Modules are solid triangles. Joystick 1 controls movement.

PROGRAMMING SUGGESTIONS

Add enemy missiles to the game to make it more difficult. Make the missiles heat seeking and give the player some way of destroying them.

Program Variables

A	Used to set up machine code scroll routine
DL	Used to calculate starting address of video RAM
FLAG	Flag for sound effects
FLAG2	As above
FUEL	Remaining fuel
MEN	Number of men
OLDP	Old position of ship
P	Current position of ship
Q	Screen code of whatever the ship hits
R	=53770 Where to peek for a random number 0 - 255
SCREEN	Address of start of video RAM
SIZE	Height of cave
T	Local variable,many uses
U	What to put on screen
X$	Local
XZ	Address of top right of screen
Y	Position of top of cave
YP	Vertical position of ship
Z	Local, many uses

Program Structure

10	Jump to initialize routine
100 - 250	Main loop
1000 - 1080	Setup machine language routine
2000 - 2070	Hit something
2300 - 2330	Game over
3000 - 3010	Collect Fuel
4000 - 4010	Collect module
5000 - 5040	Out of fuel
8000 - 8010	Display number of men left
20000 - 21080	Initialization routine

Listing

```
10      SETCOLOR 1,10,10:SETCOLOR 2,10,0:? CHR$(125):GOTO 20000
```

Main loop

```
100     POKE 205,Y:POKE 206,SIZE:IF FLAG THEN SOUND 1,20,6,FLAG
        :FLAG=FLAG-1
101     POSITION 13,22:? FUEL;"▲";:FUEL=FUEL-1:IF  NOT FUEL THE
        N 5000
102     IF FLAG2 THEN FLAG2=FLAG2-2:SOUND 0,50,10,FLAG2
110     Z=INT(RND(0)*5)-2:Y=Y+Z:IF Y<1 THEN Y=1
121     T=0:IF PEEK(R)>191 THEN T=Y*40+INT(RND(0)*SIZE)*40+XZ:P
        OKE T,84
123     U=10:IF PEEK(R)>127 THEN U=72
124     IF T AND PEEK(R)>191 THEN POKE T,U
130     IF Y+SIZE>21 THEN Y=21-SIZE
220     Z=USR(20527):Z=USR(20480)
225     Z=STICK(0):IF Z=14 AND YP THEN YP=YP-1
226     IF Z=13 AND YP<22 THEN YP=YP+1
230     OLDP=P:P=SCREEN+YP*40+10:POKE OLDP-1,13:Q=PEEK(P):IF Q
        THEN 2000
250     POKE P,127:GOTO 100
```

Setup machine language routine

```
1000    RESTORE 1010:FOR T=20480 TO 20613:READ A:POKE T,A:NEXT
        T:RETURN
1010    DATA 104,169,64,133,203,169,156,133,204,162,22,160,0,20
        0,177,203,136,145,203,200
1020    DATA 152,201,40,208,244,136,169,0,145,203,165,203,24,10
        5,40,133,203,165,204,105
1030    DATA 0,133,204,202,208,221,96
1040    DATA 104,169,103,133,203,169,156,133,204,165,205,170,16
        0,0,169, 83,145,203,24,165
1050    DATA 203,105,40,133,203,165,204,105,0,133,204,202,208,2
        36,165,206,170,24,165,203
1060    DATA 105,40,133,203,165,204,105,0,133,204,202,208,240,1
        65,205,24,101,206,133,207
1070    DATA 56,169,22,229,207,170,169,128,145,203,24,165,203,1
        05,40,133,203,165,204,105
1080    DATA 0,133,204,202,208,236,96
```

Hit something

```
2000    IF Q=10 THEN 3000
2010    IF Q=72 THEN 4000
2020    FOR T=15 TO 0 STEP -0.25
```

```
2030  POKE P,T:SOUND 1,50,0,T
2040  NEXT T
2050  MEN=MEN-1
2060  IF MEN=0 THEN 2300
2070  GOTO 21000
2300  ? CHR$(125):? :? :? "▲GAME▲OVER▲"
2310  SOUND 0,0,0,0:SOUND 1,0,0,0:? :? :? "▲▲▲YOU▲COLLECTED▲"
      ;MODULES;"▲MODULES"
2320  ? :? :? "PRESS▲<RETURN>▲FOR▲ANOTHER▲GAME";:INPUT X$
2330  RUN
```

Collect Fuel

```
3000  SOUND 1,50,6,15:FUEL=FUEL+50:FLAG=15
3010  GOTO 100
```

Collect module

```
4000  MODULES=MODULES+1:POSITION 20,22:? "MODULES▲:";MODULES;
4010  FLAG2=14:GOTO 100
```

Out of fuel

```
5000  ? CHR$(125)
5010  POSITION 10,11:? " OUT OF FUEL "
5020  FOR T=255 TO 0 STEP -1
5030  SOUND 1,T,12,8:NEXT T
5040  SOUND 1,0,0,0:GOTO 2300
```

Display number of men left

```
8000  POSITION 1,23:? "▲▲▲";
8010  FOR T=1 TO MEN:POKE SCREEN+920+T,127:NEXT T:RETURN
```

Initialization routine

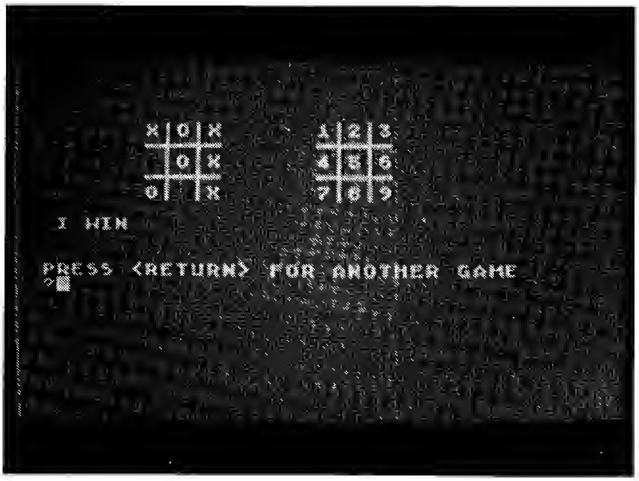
```
20000 GOSUB 1000:DIM X$(9):POKE 752,255
20010 DL=PEEK(560)+PEEK(561)*256
20020 SCREEN=PEEK(DL+4)+256*PEEK(DL+5)
20060 MODULES=0
20070 MEN=3
21000 Y=1:SIZE=9:POKE 205,Y:POKE 206,SIZE:FUEL=300:YP=4
21001 P=SCREEN+YP*40+10:OLDP=P
21010 FOR T=1 TO 40
21020 Z=USR(20527):Z=USR(20480)
```

```
21030 NEXT T
21040 POSITION 8,22:? "FUEL▲:";
21050 GOSUB 8000
21060 XZ=SCREEN+39
21070 R=53770
21080 GOTO 100
```

ChexSum Tables

10	=	1319
100	=	1995
101	=	1620
102	=	1293
110	=	2224
121	=	2978
123	=	1386
124	=	1159
130	=	1062
220	=	1225
225	=	1558
226	=	1203
230	=	2871
250	=	472
1000	=	1710
1010	=	3833
1020	=	3777
1030	=	1331
1040	=	3884
1050	=	3820
1060	=	3810
1070	=	3852
1080	=	1337
2000	=	460
2010	=	574
2020	=	542
2030	=	900
2040	=	166
2050	=	540
2060	=	369
2070	=	130
2300	=	1322
2310	=	2827
2320	=	2698
2330	=	59
3000	=	1608
3010	=	112
4000	=	1838
4010	=	494
5000	=	343
5010	=	2890
5020	=	574
5030	=	721
5040	=	438
8000	=	502
8010	=	1478
20000	=	985
20010	=	1220
20020	=	1400
20060	=	287
20070	=	353
21000	=	2204
21001	=	1352
21010	=	456
21020	=	1225
21030	=	166
21040	=	808
21050	=	241
21060	=	584
21070	=	515
21080	=	112
TOTAL	=	83212

OXO



```
X|O|X      1|2|3
 |O|X      4|5|6
O| |X      7|8|9

I WIN

PRESS <RETURN> FOR ANOTHER GAME
?
```

CLASSIFICATION: Strategy

A standard noughts and crosses game. You play the computer. This program is self prompting.

PROGRAMMING SUGGESTIONS

Use a cursor to input moves (see OTHELLO).

Program Variables

A	Local
B	Local
C	Local
EVAL	1,-1 or Ø Evaluation win,loose or draw
FULL	=1 if no space on board
INDEX	Local,several uses
LOOP	Loop counter
MNUM	Local in evaluation routine
MOVE	Flags who's turn it is
MOVE()	Holds intermediate results
PM	Holds players move number
Q	Flag as in EVAL
R	Used if machine moves first

R$	Local
SCORE()	Score table
T	Local, many uses
W	Local to print board routine
WORKBOARD()	Copy of PLAYBOARD()
X	Local
X$	Local
Z	Local

Program Structure

1∅ - 1∅	Jump to initialization
5∅∅∅ - 519∅	Draw Board
6∅∅∅ - 623∅	Evaluate proposed move
7∅∅∅ - 7∅3∅	Check if board full
8∅∅∅ - 8∅1∅	Set scoring table
1∅∅∅∅ - 1∅∅5∅	Evaluate subroutine

Listing

```
10     GOTO 20000
```

Get & do move

```
1000   ? CHR$(125):GOSUB 5000:GOSUB 7000:IF FULL=1 OR EVAL<>0
       THEN 12000
1010   POSITION 9,22:IF MOVE=1 THEN ? "MY MOVE":GOTO 2000
1020   ? "WHERE TO?";:INPUT PM
1030   IF PM<1 OR PM>9 THEN ? CHR$(125):GOSUB 5000:GOTO 1000
1040   IF PLAYBOARD(PM)<>0 THEN ? "INVALID MOVE":FOR PM=1 TO 1
       000:NEXT PM:GOTO 1000
1050   PLAYBOARD(PM)=-1:MOVE=-MOVE:GOSUB 5000
1060   FOR T=1 TO 9:WORKBOARD(T)=PLAYBOARD(T):NEXT T
1070   GOSUB 7000
1080   IF EVAL<>0 OR FULL<>0 THEN 12000
```

Machines move

```
2000   INDEX=0:FOR T=0 TO 9:MOVE(T)=99:SCORE(T)=99:NEXT T
2001   MOVE=-MOVE
2010   GOSUB 7000:IF FULL THEN 9000
2100   FOR LOOP=1 TO 9
2110   IF PLAYBOARD(LOOP)<>0 THEN 3000
2120   FOR T=1 TO 9:WORKBOARD(T)=PLAYBOARD(T):NEXT T
2130   WORKBOARD(LOOP)=1:GOSUB 6000
2140   MOVE(INDEX)=LOOP:SCORE(INDEX)=EVAL
2150   INDEX=INDEX+1
3000   NEXT LOOP
```

Aggressive move

```
4000   Q=0:MNUM=0:FOR X=0 TO 9
4010   IF SCORE(X)=1 THEN MNUM=MOVE(X):Q=1
4020   NEXT X
4030   IF Q THEN PLAYBOARD(MNUM)=1:GOTO 1000
```

Defensive move

```
4100   Q=0:MNUM=0:FOR X=0 TO 9
4110   IF SCORE(X)=0 THEN MNUM=MOVE(X):Q=1
4120   NEXT X
4130   IF Q<>0 THEN PLAYBOARD(MNUM)=1:GOTO 1000
```

```
4200  Q=0:MNUM=0:FOR X=0 TO 9
4210  IF SCORE(X)=-1 THEN MNUM=MOVE(X):Q=1
4220  NEXT X
4230  IF Q<>0 THEN PLAYBOARD(MNUM)=1:GOTO 1000
```

Error if here

```
4240  STOP
```

Draw Board

```
5000  POSITION 9,4
5010  W=0:FOR X=1 TO 3:GOSUB 5100
5011  W=W+1:IF W<3 THEN ? "|";
5012  NEXT X
5013  POSITION 9,5:? "─┼─┼─"
5020  POSITION 9,6
5030  W=0:FOR X=4 TO 6:GOSUB 5100
5031  W=W+1:IF W<3 THEN ? "|";
5032  NEXT X
5033  POSITION 9,7:? "─┼─┼─"
5040  POSITION 9,8
5050  W=0:FOR X=7 TO 9:GOSUB 5100
5051  W=W+1:IF W<3 THEN ? "|";
5052  NEXT X
5060  GOTO 5140
5100  Z=PLAYBOARD(X):IF Z=0 THEN ? "▴";
5110  IF Z=-1 THEN ? "O";
5120  IF Z=1 THEN ? "X";
5130  RETURN
5140  POSITION 20,4:? "1|2|3";
5150  POSITION 20,5:? "─┼─┼─";
5160  POSITION 20,6:? "4|5|6";
5170  POSITION 20,7:? "─┼─┼─";
5180  POSITION 20,8:? "7|8|9";
5190  RETURN
```

Evaluate proposed move

```
6000  A=WORKBOARD(7):B=WORKBOARD(5):C=WORKBOARD(3)
6010  IF A=1 AND B=1 AND C=1 THEN EVAL=1:RETURN
6020  IF A=-1 AND B=-1 AND C=0 THEN EVAL=-1:RETURN
6021  IF A=-1 AND B=0 AND C=-1 THEN EVAL=-1:RETURN
6023  IF A=0 AND B=-1 AND C=-1 THEN EVAL=-1:RETURN
6030  A=WORKBOARD(1):C=WORKBOARD(9)
6040  IF A=1 AND B=1 AND C=1 THEN EVAL=1:RETURN
6050  IF A=-1 AND B=-1 AND C=0 THEN EVAL=-1:RETURN
6051  IF A=-1 AND B=0 AND C=-1 THEN EVAL=-1:RETURN
6052  IF A=0 AND B=-1 AND C=-1 THEN EVAL=-1:RETURN
```

Evaluate horizontal lines

```
6120  Q=0:FOR T=1 TO 7 STEP 3:A=WORKBOARD(T):B=WORKBOARD(T+1)
      :C=WORKBOARD(T+2)
6130  IF A=1 AND B=1 AND C=1 THEN Q=1:T=99:GOTO 6150
6140  IF A=-1 AND B=-1 AND C=0 THEN Q=-1
6141  IF A=-1 AND B=0 AND C=-1 THEN Q=-1
6142  IF A=0 AND B=-1 AND C=-1 THEN Q=-1
6150  NEXT T:IF Q<>0 THEN EVAL=Q:RETURN
```

Evaluate vertical lines

```
6180  FOR T=1 TO 3:A=WORKBOARD(T):B=WORKBOARD(T+3):C=WORKBOAR
      D(T+6)
6190  IF A=1 AND B=1 AND C=1 THEN Q=1:T=99:GOTO 6210
6200  IF A=-1 AND B=-1 AND C=0 THEN Q=-1
6201  IF A=-1 AND B=0 AND C=-1 THEN Q=-1
6202  IF A=0 AND B=-1 AND C=-1 THEN Q=-1
6210  NEXT T
6230  EVAL=Q:RETURN
```

Check if board full

```
7000  FULL=1:FOR T=1 TO 9:WORKBOARD(T)=PLAYBOARD(T):IF PLAYBO
      ARD(T)=0 THEN FULL=0
7010  NEXT T
7020  GOSUB 10000
7030  RETURN
```

Set scoring table

```
8000  FOR T=0 TO 9:? MOVE(T),SCORE(T):NEXT T
```

Evaluate subroutine

```
9000  POSITION 9,1:? "▲GAME▲OVER▲▲":STOP
10000 EVAL=0:A=WORKBOARD(7):B=WORKBOARD(5):C=WORKBOARD(3)
10010 IF A=1 AND B=1 AND C=1 THEN EVAL=1:RETURN
10020 IF A=-1 AND B=-1 AND C=-1 THEN EVAL=-1:RETURN
10030 A=WORKBOARD(1):C=WORKBOARD(9)
10040 IF A=1 AND B=1 AND C=1 THEN EVAL=1:RETURN
10050 IF A=-1 AND B=-1 AND C=-1 THEN EVAL=-1:RETURN
```

Evaluate diagonal lines

```
10120 Q=0:FOR T=1 TO 7 STEP 3:A=WORKBOARD(T):B=WORKBOARD(T+1)
      :C=WORKBOARD(T+2)
10130 IF A=1 AND B=1 AND C=1 THEN Q=1
10140 IF A=-1 AND B=-1 AND C=-1 THEN Q=-1
10150 NEXT T:IF Q<>0 THEN EVAL=Q:RETURN
```

Win,lose or draw

```
10200 FOR T=1 TO 3:A=WORKBOARD(T):B=WORKBOARD(T+3):C=WORKBOAR
      D(T+6)
10210 IF A=1 AND B=1 AND C=1 THEN Q=1:T=99:GOTO 6210
10220 IF A=-1 AND B=-1 AND C=-1 THEN Q=-1
10230 NEXT T
10240 EVAL=Q:RETURN
10250 REM G.STRETTON 85
12000 ? :? :IF EVAL=-1 THEN ? "YOU▲WIN":GOTO 12030
12010 IF EVAL=1 THEN ? "▲I▲WIN":GOTO 12030
12020 IF FULL=1 THEN ? "▲A▲DRAW"
12030 ? :? :? "PRESS▲<RETURN>▲FOR▲ANOTHER▲GAME"
12040 INPUT X$
12050 RUN
```

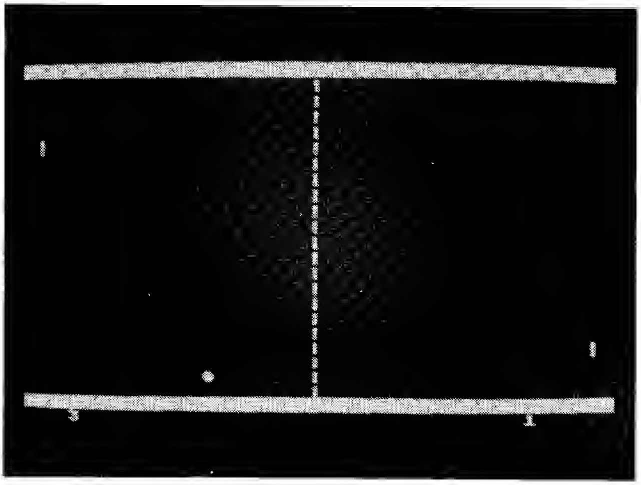
Initialize

```
20000 DIM WORKBOARD(9),PLAYBOARD(9),R$(10),SCORE(9),MOVE(9),X
      $(9)
20010 MOVE=-1
20020 ? CHR$(125)
20030 DL=PEEK(560)+PEEK(561)*256
20100 FOR INDEX=0 TO 9:PLAYBOARD(INDEX)=0:NEXT INDEX
21000 ? "WILL▲YOU▲MOVE▲FIRST▲(Y/N)";:INPUT R$
21010 IF R$="Y" OR R$="y" THEN 1000
21020 IF R$<>"N" AND R$<>"n" THEN ? :? "SORRY":? :GOTO 21000
21030 R=INT(RND(0)*5)*2+1
21040 PLAYBOARD(R)=1
21050 GOTO 1000
```

ChexSum Tables

10	=	114
1000	=	1523
1010	=	1434
1020	=	927
1030	=	1387
1040	=	2330
1050	=	1335
1060	=	1509
1070	=	225
1080	=	571
2000	=	2451
2001	=	451
2010	=	663
2100	=	411
2110	=	612
2120	=	1509
2130	=	821
2140	=	1314
2150	=	521
3000	=	176
4000	=	982
4010	=	1608
4020	=	179
4030	=	946
4100	=	982
4110	=	1543
4120	=	179
4130	=	1006
4200	=	982
4210	=	1664
4220	=	179
4230	=	1006
4240	=	60
5000	=	254
5010	=	962
5011	=	1117
5012	=	179
5013	=	458
5020	=	256
5030	=	968
5031	=	1117
5032	=	179
5033	=	460
5040	=	258
5050	=	974
5051	=	1117
5052	=	179
5060	=	256
5100	=	1075
5110	=	552
5120	=	506
5130	=	58
5140	=	808
5150	=	503
5160	=	819
5170	=	505
5180	=	830
5190	=	58
6000	=	1868
6010	=	1403
6020	=	1506
6021	=	1506
6023	=	1506
6030	=	1225
6040	=	1403
6050	=	1506
6051	=	1506
6052	=	1506
6120	=	3209
6130	=	2205
6140	=	1406
6141	=	1406
6142	=	1406
6150	=	920
6180	=	2722
6190	=	2142
6200	=	1406
6201	=	1406
6202	=	1406
6210	=	166
6230	=	472
7000	=	2549
7010	=	166
7020	=	115
7030	=	58
8000	=	1409
9000	=	1201
10000	=	2192
10010	=	1403
10020	=	1627
10030	=	1225
10040	=	1403
10050	=	1627
10120	=	3209
10130	=	1306
10140	=	1526
10150	=	920
10200	=	2722
10210	=	2142
10220	=	1526
10230	=	166
10240	=	472
12000	=	1365
12010	=	995
12020	=	825
12030	=	2451
12040	=	178
12050	=	59
20000	=	2148
20010	=	392
20020	=	343
20030	=	1222
20100	=	1109
21000	=	2029
21010	=	848
21020	=	1573
21030	=	999
21040	=	597
21050	=	127
TOTAL	=	127479

PINGPONG



CLASSIFICATION: Reflex

This is a two player game, the objective being to keep the ball going as long as possible. Joysticks move the bats up and down. There is a practice mode in which you can play the ball against the wall. Pressing the fire button on the joystick serves the ball.

PROGRAMMING SUGGESTIONS

Ball's rebound could be made dependant on bat's direction at time of hit. Size of bats could be varied to make game harder/easier.

Program Variables

BALL	Screen code for ball
BALLH	Ball's horizontal position
BALLV	Ball's vertical position
BAT1	Player 1's bat position
BAT2	Player 2's bat position
DIRH	Ball's horizontal direction 1 or -1
DIRV	Ball's vertical direction 1 or -1
OBAT1	Bat 1's old position
OBAT2	Bat 2's old position

OLDBALLH	Ball's old horizontal position
OLDBALLV	Ball's old vertical position
QZ	Constant in joystick routine
SCORE1	Player 2's score
SCREEN	Address of start of screen
SERVE	Who serves 1 or 2
T	Local variable
WALL$	Holds graphics for wall
X$	Local variable
Z	Local variable

Program Structure

1Ø	Jump to initialization
2Ø - 3Ø	Put bats onto the screen
1ØØ - 25Ø	Main loop
4ØØØ - 4Ø3Ø	Game end
5ØØØ - 5Ø3Ø	Draw court
2ØØØØ - 23ØØØ	Intialization routine

Listing

```
10      POKE 752,1:GOTO 20000
```

Put bats onto the screen

```
20      POKE SCREEN+40*OBAT1+2,0:POKE SCREEN+40*BAT1+2,124:IF P
        RACT THEN RETURN
30      POKE SCREEN+40*OBAT2+38,0:POKE SCREEN+40*BAT2+38,124:RE
        TURN
```

Main loop

```
100     OBAT1=BAT1:OBAT2=BAT2:Z=STICK(0)/2:IF Z=QZ THEN 140
110     IF BAT1>1 AND Z=INT(Z) THEN BAT1=BAT1-1
120     IF BAT1<21 AND Z<>INT(Z) THEN BAT1=BAT1+1
140     Z=STICK(1)/2:IF Z=QZ THEN 160
142     IF BAT2>1 AND Z=INT(Z) THEN BAT2=BAT2-1
150     IF BAT2<21 AND Z<>INT(Z) THEN BAT2=BAT2+1
160     IF BALLH=37 AND PRACT THEN DIRH=-1:DIRV=INT(RND(0)*3)-1
        :SOUND 0,20,10,9
170     GOSUB 20:OLDBALLH=BALLH:OLDBALLV=BALLV:BALLH=BALLH+DIRH
        :IF BALLH<2 OR BALLH>38 THEN GOTO 900
190     SOUND 0,0,0,0:Z=DIRV+BALLV:IF Z<1 THEN DIRV=1:SOUND 0,1
        21,10,9
200     IF Z>21 THEN DIRV=-1:SOUND 0,100,10,9
210     BALLV=BALLV+DIRV:Z=BALLH+40*BALLV+SCREEN:IF PEEK(Z)=124
         THEN DIRH=-DIRH:DIRV=INT(RND(0)*3)-1:SOUND 0,30,10,9
240     POKE Z,BALL:IF OLDBALLH<>20 THEN POKE OLDBALLH+40*OLDBA
        LLV+SCREEN,0:GOTO 100
250     POKE OLDBALLH+40*OLDBALLV+SCREEN,26:GOTO 100
```

Adjust score and serve

```
900     SERVE=1:IF BALLH<2 THEN SERVE=2
1000    IF SERVE=1 THEN SCORE1=SCORE1+1
1010    IF SERVE=2 THEN SCORE2=SCORE2+1
1020    IF SCORE1=15 OR SCORE2=15 THEN 4000
1030    IF PRACT THEN SERVE=1
2000    GOSUB 5000:BALLV=10:SOUND 0,0,0,0
2010    POSITION 4,23:? SCORE1;:POSITION 34,23:? SCORE2;
2020    IF SERVE=1 THEN BALLH=3:DIRH=1
2030    IF SERVE=2 THEN BALLH=37:DIRH=-1
2035    BAT1=10:BAT2=10:OBAT1=BAT1:OBAT2=BAT2:GOSUB 20
2040    POKE SCREEN+40*BALLV+BALLH,BALL
2050    IF SERVE=1 AND STRIG(0) THEN 2050
2060    IF SERVE=2 AND STRIG(1) THEN 2060
```

```
2070  DIRV=INT(RND(0)*3)-1:IF DIRV=0 THEN 2070
2090  GOTO 100
```

Game end

```
4000  POSITION 4,23:? SCORE1;:POSITION 34,23:? SCORE2;
4005  POSITION 0,23:FOR T=1 TO 22:? :FOR Z=1 TO 50 STEP 4:SOU
      ND 0,Z,10,9:NEXT Z:NEXT T
4006  FOR Z=255 TO 0 STEP -1:SOUND 0,Z,10,9:NEXT Z:SOUND 0,0,
      0,0
4010  POSITION 10,9:? "Game▲over":? :? :? "Press▲<RETURN>▲for
      ▲another▲game."
4020  INPUT X$
4030  RUN
```

Draw court

```
5000  ? CHR$(125):POSITION 0,0:? WALL$;:POSITION 0,22:? WALL$
      ;
5010  POSITION 0,10:? "▲"
5020  FOR T=1 TO 21:POSITION 20,T:? ":";:NEXT T:IF  NOT PRACT
       THEN RETURN
5030  FOR T=1 TO 21:POSITION 38,T:? "▌";:NEXT T:RETURN
```

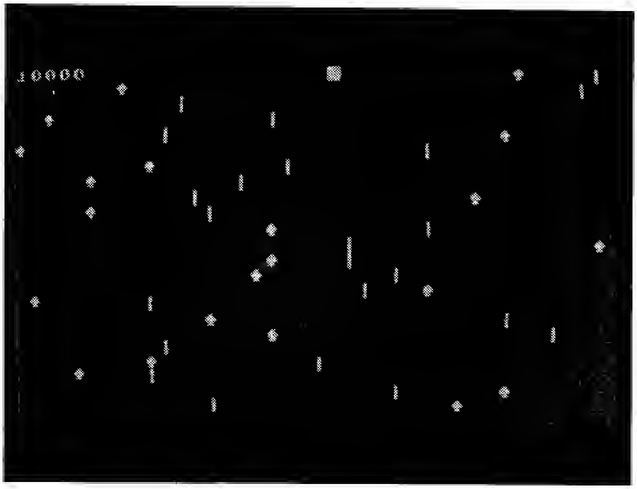
Intialization routine

```
20000 SETCOLOR 4,12,2:SETCOLOR 1,12,14:SETCOLOR 2,12,2:? CHR$
      (125)
20010 SCREEN=40000
20020 DIM X$(9)
21000 PRACT=0:? :? :? :? "[P]ractice▲or▲[G]ame";:INPUT X$
21010 IF X$<>"P" AND X$<>"p" AND X$<>"G" AND X$<>"g" THEN ? :
      ? :? "SAY▲WHAT???":? :? :GOTO 21000
21020 IF X$="P" OR X$="p" THEN PRACT=1
22000 DIM WALL$(40):FOR T=2 TO 40:WALL$(T,T)=CHR$(160):NEXT T
      :WALL$(1,1)="▲"
22040 BAT1=10:BAT2=10
22050 BALL=84
22060 Q2=7.5
23000 SERVE=1:GOTO 2000
```

ChexSum Tables

```
  10 = 461            1020 = 811          5010 = 328
  20 = 1910           1030 = 543          5020 = 1569
  30 = 1780           2000 = 819          5030 = 1390
 100 = 1996           2010 = 1192        20000 = 1672
 110 = 1376           2020 = 1053        20010 = 1426
 120 = 1402           2030 = 1161        20020 = 386
 140 = 1234           2035 = 1791        21000 = 2759
 142 = 1385           2040 = 902         21010 = 2916
 150 = 1411           2050 = 753         21020 = 1079
 160 = 2415           2060 = 835         22000 = 2982
 170 = 2516           2070 = 1399        22040 = 734
 190 = 2112           2090 = 112         22050 = 481
 200 = 1209           4000 = 1192        22060 = 429
 210 = 4147           4005 = 2546        23000 = 517
 240 = 1681           4006 = 1615
 250 = 1017           4010 = 4414
 900 = 1057           4020 = 178         TOTAL = 72218
1000 = 868            4030 = 59
1010 = 871            5000 = 1327
```

ROCK COLLECTOR



CLASSIFICATION: Evasion

Collect as many rocks as you can in the time allowed. If you hit five spikes you die.Use the I to move left and P to move right.

PROGRAMMING SUGGESTIONS

Add new objects with different score values.
Make the game work for two players at once.

Program Variables

X	Your position	B	Your position in screen RAM.
SCORE	Your current score		
DEATH	Lives left	COU	Counter
BRIGHT	Time left	T,A,S,A$	Local variables

Program Structure

1Ø - 5Ø	Inialization	5ØØ - 66Ø	Crash into object
1ØØ - 25Ø	Main loop	1ØØØ - 152Ø	Game over

Listing

Inialization

```
10     GRAPHICS Ø:POKE 752,255
20     X=2Ø
30     DEATH=5
40     BRIGHT=15
50     COU=8
```

Main loop

```
100    POSITION INT(RND(1)*4Ø),23
110    PRINT "♣";
120    POSITION INT(RND(1)*4Ø),23
130    PRINT "|"
140    B=40000+X
150    IF PEEK(B)<>Ø THEN GOSUB 5ØØ
160    POKE B,128
170    COU=COU-1
180    IF COU<Ø THEN COU=8:BRIGHT=BRIGHT-1:SETCOLOR 4,Ø,BRIGHT
       :IF  NOT BRIGHT THEN GOTO 1ØØØ
190    X=X+((PEEK(754)=1Ø) OR (STICK(Ø)=7))-((PEEK(754)=13) OR
        (STICK(Ø)=11)):IF X<5 OR X>38 THEN X=2Ø
200    POSITION Ø,Ø:PRINT SCORE
250    GOTO 1ØØ
```

Crash into object

```
500    IF PEEK(B)=124 THEN GOTO 6ØØ
510    FOR T=3Ø TO Ø STEP -5
520    SOUND Ø,T,1Ø,1Ø:SOUND 1,255-T,1Ø,1Ø
530    SETCOLOR 1,4,T/2
540    NEXT T
550    SOUND Ø,Ø,Ø,Ø:SETCOLOR 1,4,1Ø:SOUND 1,Ø,Ø,Ø
560    SCORE=SCORE+1ØØØ
570    POSITION Ø,Ø:PRINT SCORE
580    RETURN
600    FOR T=Ø TO 5Ø STEP 5
610    SOUND Ø,T,1Ø,1Ø:SOUND 1,255-T,1Ø,1Ø
620    SETCOLOR 4,Ø,T/2
630    NEXT T:SOUND 1,Ø,Ø,Ø:SOUND Ø,Ø,Ø,Ø
640    SETCOLOR 4,Ø,BRIGHT
650    DEATH=DEATH-1
660    IF DEATH THEN RETURN
```

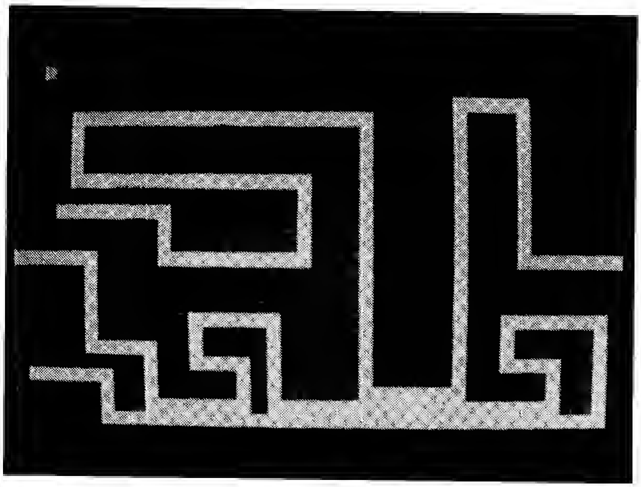
```
Game over
```

```
1000  FOR T=0 TO 250
1010  SOUND 0,T,10,7
1020  SOUND 1,T+1,10,7
1030  SOUND 2,T+2,10,7
1040  SOUND 3,T+3,10,7
1050  NEXT T
1060  FOR A=1 TO 20
1070  FOR T=0 TO 15
1080  SETCOLOR 1,8,T
1090  SETCOLOR 2,15-T,8
1100  SETCOLOR 4,T,10
1110  NEXT T
1120  NEXT A
1130  SOUND 0,0,0,0:SOUND 1,0,0,0:SOUND 2,0,0,0:SOUND 3,0,0,0
1140  DIM A$(20)
1150  GRAPHICS 18
1160  A$="GAME▲OVER":S=5:GOSUB 1500
1170  A$="YOU▲SCORED":S=5:GOSUB 1500
1180  A$=STR$(SCORE):A$(LEN(A$),LEN(A$)+7)="▲POINTS":S=4:GOSU
      B 1500
1190  POP :RUN
1500  FOR T=0 TO 11:POSITION S,T:PRINT #6;A$:SOUND 0,T,10,8:S
      OUND 1,200-T,10,10:NEXT T
1510  FOR T=0 TO 11:POSITION 0,T:PRINT #6;"▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲
      ▲":NEXT T
1520  RETURN
```

ChexSum Tables

10 = 513	530 = 520	1070 = 347
20 = 359	540 = 165	1080 = 405
30 = 333	550 = 946	1090 = 543
40 = 350	560 = 519	1100 = 416
50 = 338	570 = 323	1110 = 165
100 = 811	580 = 58	1120 = 166
110 = 214	600 = 515	1130 = 1235
120 = 811	610 = 1258	1140 = 391
130 = 194	620 = 455	1150 = 167
140 = 502	630 = 706	1160 = 1455
150 = 528	640 = 332	1170 = 1561
160 = 323	650 = 496	1180 = 2869
170 = 500	660 = 231	1190 = 127
180 = 1975	1000 = 409	1500 = 2634
190 = 3863	1010 = 453	1510 = 1739
200 = 323	1020 = 634	1520 = 58
250 = 112	1030 = 636	
500 = 633	1040 = 638	
510 = 537	1050 = 165	TOTAL = 38638
520 = 1258	1060 = 424	

SNAKES



CLASSIFICATION: Strategy

This is a two player game where each player must use all his skill and intelligence to make his opponent crash into himself, the side of the screen, or the other snake. Player One uses the keyboard and Player Two uses the joystick.

PROGRAMMING SUGGESTIONS

If you wanted, you could add a third player (he would have to use joystick port 2), or you could add some kind of scoring system.

Program Variables

X1,Y1	Player One's Co-ordinates
X2,Y2	Player Two's Co-ordinates
DX1,DY1	Player One's Direction
DX2,DX2	Player Two's Direction
PI1$,PI2$	Names of players one & two

Program Structure

Line	
1Ø - 3Ø	Initialisation
1ØØ - 28Ø	Main loop
1ØØØ - 1Ø5Ø	Player One's death
2ØØØ - 2Ø5Ø	Player Two's death
7ØØØ - 8ØØØ	Ask Player's names

Listing

Initialisation

```
10     GOSUB 7000:GRAPHICS 0:POKE 752,255
20     X1=0:Y1=12:X2=39:Y2=12
30     DX1=1:DY1=0:DX2=-1:DY2=0
```

Main loop

```
100    POKE 40000+X1+Y1*40,128
110    POKE 40000+X2+Y2*40,128
120    IF (PEEK(754)=13) THEN DX1=-1:DY1=0
130    IF (STICK(0)=11) THEN DX2=-1:DY2=0
140    IF (PEEK(754)=10) THEN DX1=1:DY1=0
150    IF (STICK(0)=7) THEN DX2=1:DY2=0
160    IF (PEEK(754)=47) THEN DX1=0:DY1=-1
170    IF (STICK(0)=14) THEN DX2=0:DY2=-1
180    IF (PEEK(754)=23) THEN DX1=0:DY1=1
190    IF (STICK(0)=13) THEN DX2=0:DY2=1
200    X1=X1+DX1:IF (X1<0 OR X1>39) OR (Y1<0 OR Y1>23) THEN GO
       TO 1000
210    X2=X2+DX2
220    Y1=Y1+DY1
230    Y2=Y2+DY2
240    IF PEEK(40000+X1+Y1*40)=128 THEN GOTO 1000
250    IF PEEK(40000+X2+Y2*40)=128 THEN GOTO 2000
260    IF (X1<0 OR X1>39) OR (Y1<0 OR Y1>23) THEN GOTO 1000
270    IF (X2<0 OR X2>39) OR (Y2<0 OR Y2>23) THEN GOTO 2000
280    GOTO 100
```

Player One's death

```
1000   GRAPHICS 18
1010   ? #6:? #6:? #6:? #6;"▲▲";PL1$;"▲IS▲DEAD."
1020   ? #6:? #6;"▲▲";PL2$;"▲HAS▲WON"
1030   POKE 754,0
1040   FOR T=0 TO 100:SOUND 1,T,0,10:IF PEEK(754)=0 THEN NEXT
       T:GOTO 1040
1050   RUN
```

Player Two's death

```
2000  GRAPHICS 18
2010  ? #6:? #6:? #6:? #6;"▲▲";PL2$;"▲IS▲DEAD."
2020  ? #6:? #6;"▲▲";PL1$;"▲HAS▲WON"
2030  POKE 754,0
2040  FOR T=0 TO 100:SOUND 1,T,0,10:IF PEEK(754)=0 THEN NEXT
      T:GOTO 2040
2050  RUN
```

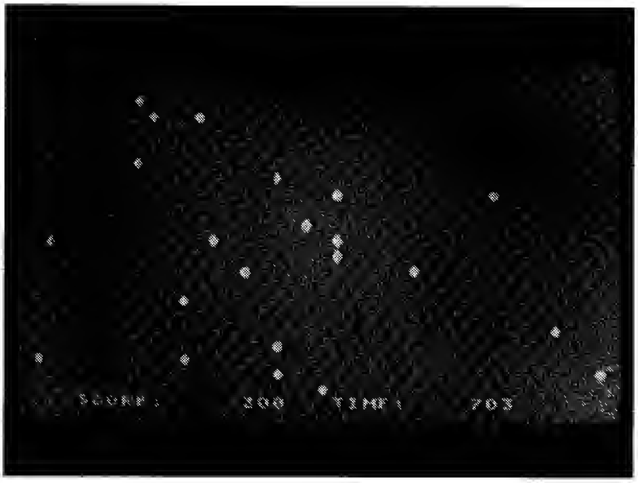
Ask Player's names

```
7000  DIM PL1$(8),A$(40),PL2$(8)
7010  GRAPHICS 2:POSITION 0,5:? #6;"PLAYER▲1▲NAME▲?":? #6;"(M
      AX.▲8▲CHARACTERS)"
7030  INPUT A$
7040  IF LEN(A$)>8 THEN GRAPHICS 18:POSITION 0,6:? #6;"SHORTE
      N▲IT,YOU▲FOOL!":FOR T=0 TO 1000:NEXT T:GOTO 7010
7050  PL1$=A$
7060  GRAPHICS 2:POSITION 0,5:? #6;"PLAYER▲2▲NAME▲?":? #6;"(M
      AX.▲8▲CHARACTERS)"
7070  INPUT A$
7080  IF LEN(A$)>8 THEN GRAPHICS 18:POSITION 0,6:? #6;"SHORTE
      N▲IT,YOU▲FOOL!":FOR T=0 TO 1000:NEXT T:GOTO 7050
7090  PL2$=A$
8000  RETURN
```

ChexSum Tables

10 =	769	230 =	555	2040 =	1862
20 =	1454	240 =	1126	2050 =	59
30 =	1371	250 =	1146	7000 =	1113
100 =	784	260 =	1437	7010 =	3130
110 =	788	270 =	1461	7030 =	163
120 =	1336	280 =	112	7040 =	3659
130 =	1194	1000 =	167	7050 =	397
140 =	1277	1010 =	1657	7060 =	3131
150 =	1128	1020 =	1221	7070 =	163
160 =	1387	1030 =	255	7080 =	3723
170 =	1196	1040 =	1846	7090 =	398
180 =	1296	1050 =	59	8000 =	58
190 =	1140	2000 =	167		
200 =	2046	2010 =	1658		
210 =	552	2020 =	1220	TOTAL =	50465
220 =	549	2030 =	255		

DIAMOND HUNT



CLASSIFICATION: Reflex

In the time allowed, you must collect all the diamonds you can. If you crash into a rock, five more diamonds will be scattered across the screen, but time will be taken away.

PROGRAMMING SUGGESTIONS

Increase the speed of your man as you collect more and more diamonds.

Program Variables

X	The X coordinate
Y	The Y coordinate
SCORE	Your score
TIME	The time you have left
U	Character you have crashed into
S,S1	Music data
S2	Flag to indicate end of music
FLAG1,FLAG2	Flags for sound effects
NOISE,NOISE1	Sound effect pitches
T	Dummy variable

Program Structure

1Ø - 5Ø	Initialize the game
1ØØ - 25Ø	Main loop
5ØØ - 6ØØ	Hit the diamond
1ØØØ - 1Ø4Ø	Hit a rock
2ØØØ - 2Ø5Ø	The time is up
5ØØØ - 5Ø7Ø	Music data
6ØØØ - 6Ø6Ø	Draw the title screen

Listing

```
5      GOSUB 6000
```

Initialize the game

```
10     POKE 752,255:GRAPHICS Ø
20     X=Ø:Y=1
30     FOR T=Ø TO 9:POKE 40000+INT(RND(1)*880),84:POKE 40000+I
       NT(RND(1)*880),96:NEXT T
40     SCORE=Ø:TIME=999
50     POSITION Ø,22:PRINT "▲▲▲▲SCORE:▲▲▲▲▲▲▲▲▲▲▲TIME:"
```

Main loop

```
100    POKE 40000+X+Y*40,Ø
110    Y=Y+((PEEK(754)=23) OR (STICK(Ø)=13))-((PEEK(754)=47) O
       R (STICK(Ø)=14))
120    IF Y<Ø THEN Y=21
130    IF Y>21 THEN Y=Ø
140    X=X+1:IF X>39 THEN X=Ø
150    U=PEEK(40000+X+Y*40)
160    POKE 40000+X+Y*40,127
170    IF U=96 THEN GOSUB 500
180    IF U=84 THEN GOSUB 1000
190    TIME=TIME-1:POSITION 30,22:? TIME;"▲";:IF TIME<1 THEN G
       OTO 2000
200    READ S,S1,S2:SOUND Ø,S,10,10:SOUND 1,S1,10,10:IF S2 THE
       N RESTORE
210    IF FLAG1 THEN NOISE=NOISE-1:SOUND 2,NOISE,8,13:SETCOLOR
        1,8,INT(RND(1)*15):IF NOISE<1 THEN FLAG1=Ø:SOUND 2,Ø,Ø
       ,Ø:SETCOLOR 1,13,10
220    IF FLAG2 THEN NOISE1=NOISE1-10:SOUND 3,NOISE1,10,10:IF
       NOISE1<1 THEN NOISE1=30:FLAG2=FLAG2-1:IF FLAG2=Ø THEN S
       OUND 3,Ø,Ø,Ø
230    IF FLAG2 THEN SETCOLOR 2,INT(RND(1)*15),3
240    IF  NOT FLAG2 THEN SETCOLOR 2,11,5
250    GOTO 100
```

Hit the diamond

```
500    SCORE=SCORE+50
510    POSITION 15,22:? SCORE;
520    NOISE1=30:FLAG2=4
600    RETURN
```

```
1000  FOR T=0 TO 4
1010  POKE 40000+INT(RND(1)*880),96
1020  NEXT T
1030  TIME=TIME-20
1035  NOISE=10:FLAG1=1
1040  RETURN
```

The time is up

```
2000  GRAPHICS 18:SOUND 0,0,0,0:SOUND 1,0,0,0:SOUND 2,0,0,0:S
      OUND 3,0,0,0
2010  ? #6:? #6:? #6:? #6;"▴▴▴▴▴▴TIME▴UP!"
2020  ? #6:? #6;"YOUR▴SCORE▴WAS▴";SCORE
2030  POKE 754,0
2040  SOUND 0,INT(RND(1)*30),7,10:SOUND 1,INT(RND(1)*255),4,1
      0:IF PEEK(754)=0 THEN GOTO 2040
2050  RUN
```

Music data

```
5000  DATA 162,81,0,162,81,0,162,81,0,162,81,0,106,81,0,108,8
      1,0,96,81,0,96,81,0,96,81,0,96,81,0,108,81,0,108,81,0
5010  DATA 162,81,0,162,81,0,162,81,0,162,81,0,108,81,0,108,8
      1,0,96,72,0,96,72,0,96,72,0,96,72,0,108,72,0,108,64,0
5020  DATA 162,64,0,162,64,0,162,53,0,162,53,0,106,53,0,108,5
      3,0,96,53,0,96,53,0,96,53,0,96,53,0,108,53,0,108,53,0
5030  DATA 162,53,0,162,53,0,162,53,0,162,53,0,108,53,0,108,5
      3,0,96,64,0,96,64,0,96,72,0,96,72,0,108,81,0,108,81,0
5040  DATA 162,64,0,162,64,0,162,64,0,162,64,0,108,64,0,108,6
      4,0,96,64,0,96,64,0,96,64,0,96,64,0,108,64,0,108,64,0
5050  DATA 162,64,0,162,64,0,162,64,0,162,64,0,106,64,0,108,6
      4,0,96,72,0,96,72,0,96,72,0,96,72,0,108,72,0,108,72,0
5060  DATA 162,81,0,162,81,0,162,81,0,162,81,0,106,81,0,108,8
      1,0,96,81,0,96,81,0,96,81,0,96,81,0,108,81,0,108,81,0
5070  DATA 162,81,0,162,81,0,162,81,0,162,81,0,106,81,0,108,8
      1,0,96,81,0,96,81,0,96,0,0,96,0,0,108,0,0,108,0,1
```

Draw the title screen

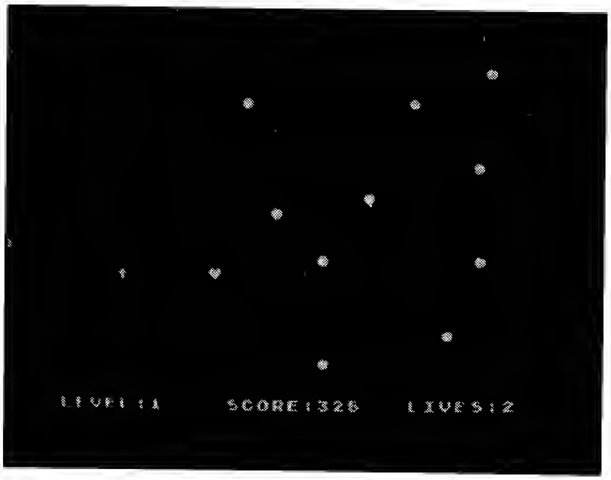
```
6000  GRAPHICS 18
6005  POKE 754,0
6010  FOR T=0 TO 11:POSITION T,5:? #6;"▴DIAMOND▴":NEXT T
6015  FOR T=0 TO 30 STEP 10:SOUND 1,T,0,15:NEXT T:SOUND 1,0,0
      ,0
6020  FOR T=10 TO 1 STEP -1:POSITION T,5:? #6;"▴DIAMOND▴":NEX
      T T
6030  FOR T=0 TO 15:POSITION T,7:? #6;"▴HUNT":NEXT T
6035  FOR T=0 TO 30 STEP 10:SOUND 1,T,0,15:NEXT T:SOUND 1,0,0
      ,0
```

```
6040  FOR T=14 TO 1 STEP -1:POSITION T,7:? #6;"▲HUNT▲":NEXT T

6050  IF PEEK(754)<>0 THEN RETURN
6060  GOTO 6010
```

ChexSum Tables

5	=	209	240	=	611	5020	=	5192
10	=	513	250	=	112	5030	=	5196
20	=	617	500	=	578	5040	=	5212
30	=	2953	510	=	534	5050	=	5206
40	=	785	520	=	754	5060	=	5200
50	=	1635	600	=	58	5070	=	4973
100	=	678	1000	=	326	6000	=	167
110	=	2731	1010	=	1106	6005	=	255
120	=	597	1020	=	161	6010	=	1738
130	=	598	1030	=	533	6015	=	1559
140	=	1154	1035	=	715	6020	=	1988
150	=	1019	1040	=	58	6030	=	1511
160	=	783	2000	=	1477	6035	=	1559
170	=	572	2010	=	1590	6040	=	1796
180	=	565	2020	=	1640	6050	=	505
190	=	1724	2030	=	255	6060	=	223
200	=	1959	2040	=	2910			
210	=	3915	2050	=	59			
220	=	3414	5000	=	5200			
230	=	1057	5010	=	5201	TOTAL	=	93636

SPACMAN



LEVEL:1 SCORE:326 LIVES:2

CLASSIFICATION: Invader/Evasion

Collect all of the objects on the screen and avoid the love heart. Use the I,P,Q and Z keys to move left,right,up and down.

PROGRAMMING SUGGESTIONS

Increase the speed of the game by resorting to machine code.

Program Variables

SCORE	Your score.
LEVEL	The level you are at in the game.
LIVES	The number of lives left
X,Y	Your player's coordinates on the screen
A,B	The love hearts X and Y coordinates
OBJ	Number of objects collected
T	Dummy variables
VA	Character under love heart
UY	Character under you

Program Structure

Lines

5 - 8∅	Initailization
1∅∅ - 25∅	Main loop
5∅∅ - 58∅	Get object
1∅∅∅ - 1∅6∅	Death
5∅∅∅ - 5∅6∅	Title screen

Listing

Initailization

```
5       GOSUB 5000
10      SCORE=0:LEVEL=1:LIVES=3
```

Initialize display

```
20      GRAPHICS 0:POKE 752,255
30      X=39:Y=21
40      A=1:B=1:OBJ=-1
50      POSITION 0,22:PRINT "▲▲▲▲LEVEL:";LEVEL;"▲▲▲▲SCORE:";
        SCORE;"▲▲▲LIVES:";LIVES
60      FOR T=0 TO (LEVEL*2+10):POKE 40000+INT(RND(1)*819),84:N
        EXT T
70      UA=PEEK(40000+A+B*40):UY=PEEK(40000+X+Y*40)
80      IF UY=84 THEN GOSUB 500
```

Main loop

```
100     POKE 40000+A+B*40,UA
110     A=A+(X>A)-(X<A):B=B+(Y>B)-(Y<B)
120     UA=PEEK(40000+A+B*40):IF UA=92 THEN GOTO 1000
130     POKE 40000+A+B*40,64
140     POKE 40000+X+Y*40,UY
150     X=X+((PEEK(754)=10) OR (STICK(0)=7))-((PEEK(754)=13) OR
         (STICK(0)=11))
160     IF X>39 THEN X=0
170     IF X<0 THEN X=39
180     Y=Y+((PEEK(754)=23) OR (STICK(0)=13))-((PEEK(754)=47) O
        R (STICK(0)=14))
190     IF Y>21 THEN Y=0
200     IF Y<0 THEN Y=21
210     UY=PEEK(40000+X+Y*40)
220     POKE 40000+X+Y*40,92
230     IF ((A=X) AND (B=Y)) AND (UA<>84) THEN GOTO 1000
240     IF UY=84 THEN GOSUB 500
250     GOTO 100
```

```
500    VY=0:OBJ=OBJ+1:SCORE=SCORE+25:POSITION 21,22:? SCORE;
505    FOR T=0 TO 30 STEP 2:SOUND 1,T,0,9:NEXT T:SOUND 1,0,0,0


510    IF OBJ<>(LEVEL*2+10) THEN RETURN
520    GRAPHICS 18
530    ? #6:? #6:? #6:? #6:? #6;"▲▲▲▲▲▲WELL▲DONE!"
540    FOR T=0 TO 300:NEXT T
550    GRAPHICS 18
560    LEVEL=LEVEL+1
570    ? #6:? #6:? #6:? #6:? #6;"▲▲▲▲▲▲LEVEL▲";LEVEL
580    FOR T=0 TO 255:SOUND 1,T,10,10:NEXT T:POP :SOUND 1,0,0,
       0:GOTO 20
```

Death

```
1000   LIVES=LIVES-1
1005   FOR N=0 TO 5:FOR T=255 TO 200 STEP -5:SOUND 1,T,10,10:S
       OUND 0,T-200,0,9:NEXT T:NEXT N:SOUND 1,0,0,0:SOUND 0,0,
       0,0
1010   IF LIVES THEN GOTO 20
1020   GRAPHICS 18
1030   ? #6:? #6:? #6:? #6;"▲▲▲▲YOU▲ARE▲DEAD."
1031   FOR T=0 TO 10:SOUND 1,0,0,0:READ A,B:SOUND 1,A,10,10:FO
       R N=1 TO B:NEXT N:NEXT T:SOUND 1,0,0,0
1032   DATA 108,80,108,80,108,40,108,80,91,80,96,40,96,80,108,
       40,108,80,114,40,108,160
1040   POKE 754,0
1050   IF PEEK(754)=0 THEN GOTO 1050
1060   RUN
```

Title screen

```
5000   GRAPHICS 0:SETCOLOR 2,12,4
5010   POSITION 0,5
5015   POKE 754,0
5020   ? "▲▲▲▲";
```

Graphics for title

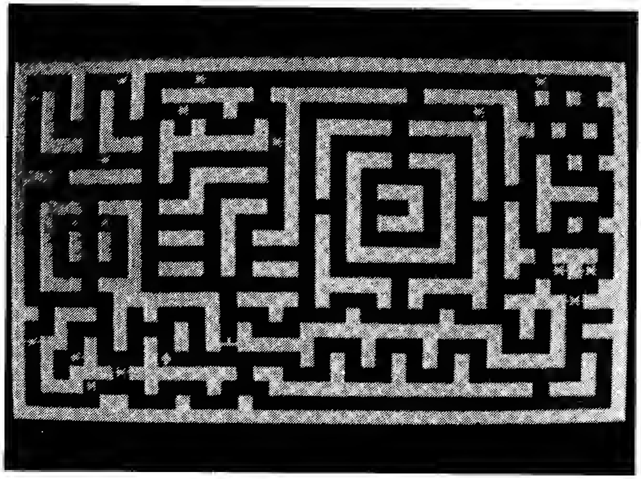
```
5030   ? "▲┌──┐▲┌──┐▲┌──┐▲┌───▲┌┬─┐▲┌──┐▲┌──┐▲▲▲▲▲▲▲▲▲▲▲
      ├──┤▲├──┘▲├──┤▲│▲▲▲│││▲├──┤▲│▲│▲▲▲▲▲▲▲▲▲▲▲──┘▲
       │▲▲▲│▲│▲┼───▲│││▲│▲│▲│▲│"
```

```
5040  ? :? :SETCOLOR 1,0,INT(RND(1)*15)
5045  SOUND 0,INT(RND(1)*255),0,10
5046  FOR T=0 TO 255 STEP 16
5047  SOUND 1,T,10,10
5048  NEXT T
5050  IF PEEK(754)>0 THEN SOUND 0,0,0,0:SOUND 1,0,0,0:RETURN
5060  GOTO 5020
```

ChexSum Tables

5	= 193	210	= 1030	1031	= 3165
10	= 986	220	= 894	1032	= 3804
20	= 513	230	= 1609	1040	= 255
30	= 776	240	= 559	1050	= 665
40	= 1119	250	= 112	1060	= 59
50	= 2565	500	= 2019	5000	= 480
60	= 2015	505	= 1551	5010	= 182
70	= 2118	510	= 750	5015	= 255
80	= 559	520	= 167	5020	= 230
100	= 811	530	= 1958	5030	= 4248
110	= 2501	540	= 524	5040	= 947
120	= 1681	550	= 167	5045	= 885
130	= 852	560	= 495	5046	= 542
140	= 808	570	= 1843	5047	= 529
150	= 2649	580	= 1910	5048	= 167
160	= 626	1000	= 498	5050	= 1151
170	= 625	1005	= 3601	5060	= 223
180	= 2737	1010	= 323		
190	= 604	1020	= 167		
200	= 603	1030	= 1848	TOTAL	= 65153

MAZING



CLASSIFICATION: Evasion

Move your man around the screen with joystick 1. You must eat all of the asterisks. When you have eaten all of the asterisks you will move onto the next level. A nasty little beastie will try to eat you while you are moving round the board. Beware!!!!

PROGRAMMING SUGGESTIONS

Increase the number of nasties moving round the screen and add music to the background to make the game more interesting.

Program Variables

BDIR	Beast direction
BPOS	Beast position
BX	Beast X position
BY	Beast Y position
FLAGS	Sound flag
HITFLAG	Indicates a hit
LEVEL	Current level
M$	Holds the maze
MAN	CHR$ code for man
NUMMEN	Number of men
OLDB	Beasts old position
OLDCHR	Character under beast
OLDPLACE	Mans old screen position
PLACE	Mans position on screen
POSH	Mans X position
POSV	Mans Y position
RAND	Where to PEEK for a random number
SCREEN	Start of video RAM

Program Structure

1Ø	Cursor off and set margins
2Ø	Jump to initialization
1ØØ - 212	Move man
1ØØØ - 15ØØ	Move beastie
2ØØØ - 2Ø3Ø	Put man on board
3ØØØ	Hit something
3Ø1Ø - 3Ø8Ø	Update condition
31ØØ - 323Ø	Hit the beastie
35ØØ - 358Ø	All the men are gone
4ØØØ - 4Ø4Ø	End of the game
9ØØØ - 933Ø	Put maze level into M$
95ØØ - 952Ø	Convert maze to screen format
953Ø - 959Ø	Put the asterisks into maze
96ØØ - 969Ø	Draw the maze
1ØØØ1 - 1ØØ24	Data for maze one
1ØØ51 - 1ØØ74	Data for maze two
1Ø1ØØ - 1Ø124	Data for maze three
1Ø151 - 1Ø174	Data for maze four
2ØØØØ - 2Ø11Ø	Initialize the subroutines

Listing

```
1       REM .......... NOTE :LAST LINE IN EACH  DATA BLOCK IS 1
         CHARACTER SHORTER THAN  THE REST .....................
        ........
10      POKE 752,1:POKE 82,0:POKE 83,39
20      GOTO 20000
100     TIME=TIME+1:PLACE=SCREEN+POSH+POSV*40:OLDPLACE=PLACE:PO
        KE 77,0
110     Z=STICK(0):IF FLAGS THEN SOUND 0,FLAGS,10,12:FLAGS=FLAG
        S-5:IF FLAGS<20 THEN FLAGS=0
120     IF FLAGS=0 THEN SOUND 0,255,10,12
130     ON Z GOTO 1000,1000,1000,1000,190,180,140,1000,200,210,
        150,1000,160,170,1000
140     IF PEEK(PLACE+1)<>128 THEN POSH=POSH+1
141     GOTO 1000
150     IF PEEK(PLACE-1)<>128 THEN POSH=POSH-1
151     GOTO 1000
160     IF PEEK(PLACE+40)<>128 THEN POSV=POSV+1
161     GOTO 1000
170     IF PEEK(PLACE-40)<>128 THEN POSV=POSV-1
171     GOTO 1000
180     IF PEEK(PLACE-39)<>128 THEN POSV=POSV-1:POSH=POSH+1:GOT
        O 1000
181     IF PEEK(PLACE-40)<>128 THEN POSV=POSV-1:GOTO 1000
182     IF PEEK(PLACE+1)<>128 THEN POSH=POSH+1
183     GOTO 1000
190     IF PEEK(PLACE+41)<>128 THEN POSV=POSV+1:POSH=POSH+1:GOT
        O 1000
191     IF PEEK(PLACE+40)<>128 THEN POSV=POSV+1:GOTO 1000
192     IF PEEK(PLACE+1)<>128 THEN POSH=POSH+1
193     GOTO 1000
200     IF PEEK(PLACE+39)<>128 THEN POSV=POSV+1:POSH=POSH-1:GOT
        O 1000
201     IF PEEK(PLACE-1)<>128 THEN POSH=POSH-1:GOTO 1000
202     IF PEEK(PLACE+40)<>128 THEN POSV=POSV+1:GOTO 1000
203     GOTO 1000
210     IF PEEK(PLACE-41)<>128 THEN POSH=POSH-1:POSV=POSV-1:GOT
        O 1000
211     IF PEEK(PLACE-1)<>128 THEN POSH=POSH-1:GOTO 1000
212     IF PEEK(PLACE-40)<>128 THEN POSV=POSV-1:GOTO 1000
```

Move beastie

```
1000    T=BPOS-SCREEN
1210    BY=INT(T/40):BX=T-40*BY
1220    OLDB=BPOS
1230    IF ABS(BDIR)=1 THEN GOTO 1270
1240    T=SGN(POSH-BX):IF T AND PEEK(BPOS+T)<>128 AND PEEK(RAND
        )>220 THEN 1380
1250    IF T AND PEEK(BPOS+T)<>128 THEN BDIR=T:GOTO 1450
```

```
1260  GOTO 1290
1270  T=40*SGN(POSV-BY):IF T AND PEEK(BPOS+T)<>128 AND PEEK(R
      AND)>220 THEN 1380
1280  IF T AND PEEK(BPOS+T)<>128 THEN BDIR=T:GOTO 1450
1290  IF PEEK(BPOS+BDIR)<>128 THEN GOTO 1450
1300  T=PEEK(RAND)>127
1310  IF T THEN GOTO 1340
1320  T=SGN(POSH-BX)
1330  IF T AND PEEK(BPOS+T)<>128 THEN BDIR=T:GOTO 1450
1340  T=40*SGN(POSV-BY)
1350  IF T AND PEEK(BPOS+T)<>128 THEN BDIR=T:GOTO 1450
1360  T=SGN(HPOS-BX)
1370  IF T AND PEEK(BPOS+T)<>128 THEN BDIR=T:GOTO 1450
1380  T=INT(RND(0)*4)
1390  ON T GOTO 1410,1420,1430
1400  IF PEEK(BPOS-40)<>128 THEN BDIR=-40:GOTO 1450
1410  IF PEEK(BPOS+40)<>128 THEN BDIR=40:GOTO 1450
1420  IF PEEK(BPOS-1)<>128 THEN BDIR=-1:GOTO 1450
1430  IF PEEK(BPOS+1)<>128 THEN BDIR=1:GOTO 1450
1440  GOTO 1400
1450  BPOS=BPOS+BDIR
1460  POKE OLDB,OLDCHR
1470  OLDCHR=PEEK(BPOS)
1480  POKE BPOS,THEM
1490  HITFLAG=(OLDCHR=MAN)
1500  IF HITFLAG THEN 3100
```

Put man on board

```
2000  POKE OLDPLACE,0:PLACE=SCREEN+POSH+POSV*40
2010  T=PEEK(PLACE):IF T THEN 3000
2020  POKE PLACE,MAN
2030  GOTO 100
3000  IF T<>10 THEN 3100
3010  TOTAL=TOTAL-1:T=PLACE-SCREEN+1:M$(T,T)="▲"
3020  FLAGS=60:IF TOTAL THEN 100
3030  FOR T=1 TO 30:? :NEXT T
3040  IF LEVEL=3 THEN 4000
3050  GRAPHICS 2+16
3060  LEVEL=LEVEL+1:POSITION 3,5:? #6;"LEVEL▲";LEVEL+1:POSITI
      ON 3,8:? #6;NUMMEN;"▲REMAINING"
3070  FOR T=100 TO 0 STEP -1:SOUND 0,T,12,15:NEXT T:SOUND 0,2
      55,10,12
3080  GOTO 20070
```

Hit the beastie

```
3100  X=POSH+POSV*40+SCREEN
3110  FOR T=255 TO 0 STEP -1
3120  POKE X,T:SOUND 0,T,10,12
3130  NEXT T
3140  NUMMEN=NUMMEN-1
3150  IF  NOT NUMMEN THEN 3500
3160  GRAPHICS 2+16:? #6;NUMMEN;"▲▲REMAINING"
3170  POSH=25:POSV=9
3180  T1=0:T2=0:FOR T=0 TO 255:SOUND 0,T,10,12:SOUND 1,T1,10,
      12:SOUND 2,T2,10,12
3190  T1=T1+2:IF T1>255 THEN T1=0
3200  T2=T2+3:IF T2>255 THEN T2=0
3210  OLDS=T:NEXT T
3220  GOSUB 9600
3230  GOTO 100
```

All the men are gone

```
3500  GRAPHICS 2+16:POSITION 2,5:? #6;"ALL▲MEN▲DEAD!!":FOR T=
      1 TO 255 STEP 4
3510  SOUND 1,0,0,0:SOUND 2,0,0,0:FOR T1=1 TO 253 STEP T
3520  SOUND 0,T1,10,12
3530  NEXT T1
3540  NEXT T
3550  SOUND 0,0,0,0
3580  GOTO 4020
```

End of the game

```
4000  ? "ALL▲LEVELS▲COMPLETED!"
4010  ? :? "SCORE▲:";TIME
4020  ? :? :? "PRESS▲<RETURN>▲FOR▲ANOTHER▲GAME"
4030  INPUT X$
4040  RUN
```

Put maze level into M$

```
9000  RESTORE 10000+LEVEL*50+1
9010  POSH=25:POSV=9
9100  FOR T=0 TO 23
9200  READ T$
```

```
9300  M$(T*40+1,T*40+40)=T$
9310  NEXT T
9320  GOSUB 9500:GOSUB 9600
9330  RETURN
```

Convert maze to screen format

```
9500  FOR T=1 TO LEN(M$)
9510  IF M$(T,T)="*" THEN M$(T,T)=CHR$(160)
9520  NEXT T
```

Put the asterisks into maze

```
9530  TOTAL=30
9540  FOR T=1 TO TOTAL
9560  Z=INT(RND(0)*959+1):IF M$(Z,Z)<>"." THEN 9560
9570  M$(Z,Z)="*"
9580  NEXT T
9590  RETURN
```

Draw the maze

```
9600  FOR T=1 TO 20:? :NEXT T
9610  ? M$;
9620  POKE SCREEN+959,128
9640  BPOS=SCREEN+882:OLDCHR=PEEK(BPOS)
9670  BDIR=1
9690  RETURN
```

Data for maze one

```
10001 DATA ****************************************
10002 DATA *   *   *                              *
10003 DATA * * * * * ****** ********* ****** * * **
10004 DATA * * * * *     *   *             *      *
10005 DATA * *   *   * *   * * ***** ***** ** * * *
10006 DATA * *** *** ******* * *         * *      *
10007 DATA *         *       * * *** *** * * * * **
10008 DATA *** ***** * ***** * * *     * * * *    *
10009 DATA *           *     * * * *** * *   **** *
10010 DATA * *** *** *** *** *   *   * *   * *    *
10011 DATA * *     *     *   * * * *** * * * * * **
10012 DATA * * * * * *** * *** * *     * * *      *
10013 DATA * * * * *     *     * ******* * ** *** *
10014 DATA * *     * *** * *** *         * *   *  *
```

```
10015 DATA * *** ***           ***** *****   *   **
10016 DATA *      ******* **** *   * *   * **** ***
10017 DATA ** *** * *   *   *    *     *    * *   *
10018 DATA *  *   *   * * *   ************* * * ***
10019 DATA * ** * * * * * *****   *   *   *   *   *
10020 DATA * *  *   *         * * * * * * ***** * *
10021 DATA * * *** ******* **   *   *   *       * *
10022 DATA * ***    *   *   ***************** *** *
10023 DATA *     **   *   *                       *
10024 DATA ***************************************
```

Data for maze two

```
10051 DATA ****************************************
10052 DATA *             *         *   * *        *
10053 DATA * * * * ***** * * * * * * * * * ****** *
10054 DATA * * * * *     * * * * * * * * *        *
10055 DATA * * * * * ***** * * * * * * * ** *******
10056 DATA * * * * * *     * * * *   *   *        *
10057 DATA * * * * * * *** * * * * ***** * ****** *
10058 DATA * * * * * *       *   *       *        *
10059 DATA * * * *   * *** * * * * *** * ******** *
10060 DATA * * * * * *     * * * * * * *          *
10061 DATA * * *   *   *** * * * * * * * **********
10062 DATA * * * * * * *   * *** *     * *   *    *
10063 DATA * * * *   * * * *     * ***** *** * ** *
10064 DATA * * * * * * * * **** ** *       * * *  *
10065 DATA * * * * * *   *         * ***** * * * **
10066 DATA * * * * * ******* * ***** * *   *   *  *
10067 DATA *         *       *           *   * * **
10068 DATA ****** **** *** *** *************** *  *
10069 DATA *               *     *    *   * ** ** *
10070 DATA * ************* * *** * **   * * *     *
10071 DATA *               *     *    * * * * *****
10072 DATA ********* ********* * ****** * *     * *
10073 DATA *                   *        *   ***   *
10074 DATA ***************************************
```

Data for maze three

```
10101 DATA ****************************************
10102 DATA *         *       *     *      *   *   *
10103 DATA * *  ** * * * *** * *** * * **   *   * *
10104 DATA * **  * * ***** * *  *  * * ********** *
10105 DATA *       *       *    **   * *  *       *
10106 DATA ***** **** **** **** **** *   ** *******
10107 DATA *                         ******       *
10108 DATA * *** *** *** *** *** ***      ******* *
10109 DATA *                       ********       *
10110 DATA *** * * * * * * * * *** *        *******
10111 DATA *                     * **** *****     *
10112 DATA * * * * * * * * * * * *            *** *
```

```
10113 DATA *                       ******** *     *
10114 DATA * * * * * * * * * * * *    *   * *******
10115 DATA *                       * ** * *       *
10116 DATA * * * * * * * * * * * * *  * * *** *** *
10117 DATA *                       ** * *   *     *
10118 DATA *** ** ** ** ** ** ** ***  * * * * *** *
10119 DATA *                       * ** * * *     *
10120 DATA * ** ** ** ** ** ** ** **  * * * * *****
10121 DATA *                      *** * * * *     *
10122 DATA * *** *** *** *** *** **   * * * ***** *
10123 DATA *                        *     *       *
10124 DATA ****************************************
```

Data for maze four

```
10151 DATA ****************************************
10152 DATA *   *   *   *     *     *   *   *   *  *
10153 DATA * * * * * * * * * * * * * * * * * *   **
10154 DATA * * * * * * * * * * * * * *   *   ***  *
10155 DATA *   *   *   *       *   * ********* ** *
10156 DATA ** **** ** *** ********** *     *      *
10157 DATA *   *   *   *   *  * * *  *****   * * **
10158 DATA * * * **** *** ***     * **   ***** *  *
10159 DATA * * *      *       * * **** * *   *** **
10160 DATA * * * * * ** *********      *   *  *   *
10161 DATA * * * * * *  *     * * ***********   * *
10162 DATA * * * * * * ** *** * * *   *     *******
10163 DATA * * *   * * *  *   * *   * * *****   * *
10164 DATA *   * * * * * **** * *** * * *   * * * *
10165 DATA * * * * * * * * *      * * *   *       *
10166 DATA *   * * * * * *   * *  * * * * * * * * *
10167 DATA *** * * * * * ** ** ** * * * *   * *   *
10168 DATA *       * * *  * *   * * * * * *   * ***
10169 DATA *** * * * * ** * * * * * * * * * * *   *
10170 DATA *         *  * * *   * * * * *   * * * *
10171 DATA *** ** * *** * * * * * * * * * *   * * *
10172 DATA * * *  *   * * * * * * * * * * * * *   *
10173 DATA *   * ** *   *   *   *   *       *   * *
10174 DATA ****************************************
```

Initialize the subroutines

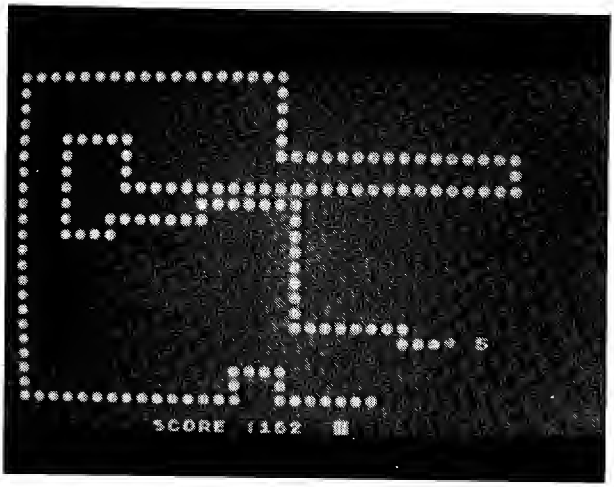
```
20000 DIM M$(960),T$(40),X$(9)
20020 LEVEL=0:TIME=0:SCREEN=40000:OLDS=0:RAND=53770
20030 GRAPHICS 2+16
20040 POSITION 5,10
20050 ? #6;"JUST▲A▲TICK."
20060 NUMMEN=3
20070 GOSUB 9000
20080 MAN=123
20090 THEM=88
20110 GOTO 100
```

ChexSum Tables

10	=	1118
20	=	114
100	=	2246
110	=	2530
120	=	770
130	=	2416
140	=	1164
141	=	127
150	=	1166
151	=	127
160	=	1229
161	=	127
170	=	1231
171	=	127
180	=	1980
181	=	1406
182	=	1164
183	=	127
190	=	1986
191	=	1404
192	=	1164
193	=	127
200	=	1979
201	=	1341
202	=	1404
203	=	127
210	=	1989
211	=	1341
212	=	1406
1000	=	576
1210	=	1561
1220	=	412
1230	=	745
1240	=	2417
1250	=	1528
1260	=	273
1270	=	2603
1280	=	1528
1290	=	926
1300	=	729
1310	=	380
1320	=	759
1330	=	1528
1340	=	937
1350	=	1528
1360	=	770
1370	=	1528
1380	=	744
1390	=	639
1400	=	1442
1410	=	1385
1420	=	1316
1430	=	1259
1440	=	131
1450	=	594
1460	=	369
1470	=	588
1480	=	367
1490	=	700
1500	=	337
2000	=	1184
2010	=	905
2020	=	362
2030	=	112
3000	=	443
3010	=	2014
3020	=	730
3030	=	720
3040	=	470
3050	=	282
3060	=	3347
3070	=	1836
3080	=	226
3100	=	948
3110	=	574
3120	=	864
3130	=	166
3140	=	552
3150	=	385
3160	=	1457
3170	=	748
3180	=	2952
3190	=	1310
3200	=	1315
3210	=	594
3220	=	263
3230	=	112
3500	=	2378
3510	=	1318
3520	=	489
3530	=	190
3540	=	166
3550	=	182
3580	=	207
4000	=	1540
4010	=	791
4020	=	2451
4030	=	186
4040	=	59
9000	=	641
9010	=	748
9100	=	362
9200	=	219
9300	=	1520
9310	=	166
9320	=	546
9330	=	58
9500	=	637
9510	=	1810
9520	=	166
9530	=	378
9540	=	445
9560	=	2092
9570	=	778
9580	=	166
9590	=	58
9600	=	704
9610	=	238
9620	=	543
9640	=	1269
9670	=	348
9690	=	58
10001	=	1836
10002	=	1476
10003	=	1736
10004	=	1526
10005	=	1656
10006	=	1626
10007	=	1596
10008	=	1656
10009	=	1586
10010	=	1636
10011	=	1606
10012	=	1616
10013	=	1646
10014	=	1586
10015	=	1636
10016	=	1666
10017	=	1576
10018	=	1676
10019	=	1616
10020	=	1606
10021	=	1626
10022	=	1706
10023	=	1496
10024	=	1794
10051	=	1836
10052	=	1496
10053	=	1686
10054	=	1586
10055	=	1696
10056	=	1566
10057	=	1696
10058	=	1536
10059	=	1686
10060	=	1576
10061	=	1676
10062	=	1596
10063	=	1646
10064	=	1626
10065	=	1616
10066	=	1666
10067	=	1516
10068	=	1766
10069	=	1536

```
10070 = 1686          10119 = 1516          10168 = 1596
10071 = 1556          10120 = 1696          10169 = 1646
10072 = 1726          10121 = 1526          10170 = 1576
10073 = 1506          10122 = 1706          10171 = 1656
10074 = 1794          10123 = 1476          10172 = 1616
10101 = 1836          10124 = 1794          10173 = 1556
10102 = 1506          10151 = 1836          10174 = 1794
10103 = 1646          10152 = 1536          20000 = 1280
10104 = 1696          10153 = 1636          20020 = 1895
10105 = 1526          10154 = 1626          20030 = 282
10106 = 1746          10155 = 1616          20040 = 262
10107 = 1516          10156 = 1676          20050 = 1022
10108 = 1706          10157 = 1606          20060 = 359
10109 = 1536          10158 = 1666          20070 = 257
10110 = 1656          10159 = 1606          20080 = 390
10111 = 1556          10160 = 1636          20090 = 487
10112 = 1596          10161 = 1656          20110 = 112
10113 = 1546          10162 = 1656
10114 = 1646          10163 = 1616
10115 = 1506          10164 = 1646          TOTAL = 275698
10116 = 1656          10165 = 1576
10117 = 1506          10166 = 1616
10118 = 1696          10167 = 1646
```

WORMA



CLASSIFICATION: Skill

You must move your worm around the screen for as long as possible. When a number appears, run over it and the tail of your worm will grow longer. The joystick controls the direction of the worms head and pressing the fire button sends the worm in that direction. If your head touches your body then game is over. The objective of this game is to live as long as possible and make the worm grow to the maximium length.

PROGRAMMING SUGGESTIONS

Increase the speed that the worm moves around the board and put fatal obstacles in its path.

Program Variables

AMX()	Amounts to move X
AMY()	Amounts to move Y
BODY	Screen code for body
CHANCE	Flag position change
DROP	Number of times to grow
FRONT	Screen codes for arrows
HEAD	Position of head in array
POS	Screen position of head
POST	Used to put number on screen
SCREEN	Start of video ram
TAIL	Position of tail in array
TYPE	Direction indicater
X()	X coordinates of worm
Y()	Y coordinates of worm

Program Structure

1Ø -	Jump initialize
1ØØ - 2ØØ	Main loop
5ØØØ - 5Ø6Ø	Joystick routine
52ØØ - 532Ø	Move routine
6ØØØ - 6Ø5Ø	Random number to screen
1ØØØØ - 1ØØ7Ø	End of game
2ØØØØ - 2Ø17Ø	Initialize

Listing

```
10     POKE 752,2:? :GOTO 20000
100    POKE 77,0:ZQ=X(HEAD)+40*Y(HEAD)+SCREEN:GOSUB 5000
110    POS=X(HEAD)+40*Y(HEAD)+SCREEN
120    Q=PEEK(POS):IF Q=BODY THEN 10000
130    IF Q>16 AND Q<26 THEN Q=Q-16:DROP=DROP+Q:SCORE=SCORE+Q:
       TEST=0
140    IF CHANGE AND  NOT DROP THEN TAIL=TAIL-1:IF TAIL<0 THEN
        TAIL=970
150    IF CHANGE AND DROP THEN DROP=DROP-1
160    POKE X(TAIL)+40*Y(TAIL)+SCREEN,0
170    Z=HEAD+1:IF Z>970 THEN Z=0
180    IF HEAD<>TAIL THEN POKE X(Z)+40*Y(Z)+SCREEN,BODY
181    IF HEAD=TAIL THEN POKE ZQ,0
190    POKE X(HEAD)+40*Y(HEAD)+SCREEN,FRONT(TYPE)
200    IF  NOT TEST THEN GOSUB 6000
210    POSITION 10,23:? "SCORE▲:";SCORE;"▲▲";
220    GOTO 100
```

Joystick routine

```
5000   S=STICK(0)
5010   IF S=15 THEN 5200
5020   ON S GOTO 5200,5200,5200,5200,5200,5200,5040,5200,5200,
       5200,5060,5200,5050,5030,5200
5030   TYPE=0:GOTO 5200
5040   TYPE=3:GOTO 5200
5050   TYPE=1:GOTO 5200
5060   TYPE=2:GOTO 5200
```

Move routine

```
5200   CHANGE=0
5210   IF STRIG(0) THEN FLAG=0:REPT=0:RETURN
5220   IF REPT THEN REPT=REPT-1:RETURN
5230   X=X(HEAD):Y=Y(HEAD)
5240   X1=AMX(TYPE):Y1=AMY(TYPE)
5250   X1=X1+X:IF X1<0 OR X1>39 THEN RETURN
5260   Y1=Y1+Y:IF Y1<0 OR Y1>22 THEN RETURN
5270   CHANGE=1
5280   HEAD=HEAD-1
5290   IF HEAD<0 THEN HEAD=970
5300   X(HEAD)=X1:Y(HEAD)=Y1
5310   IF  NOT FLAG THEN REPT=6:FLAG=1
5320   RETURN
```

Random number to screen

```
6000  Z=INT(RND(0)*9)+17:IF TAIL=HEAD AND Z=17 THEN 6000
6010  POST=INT(RND(0)*920)+SCREEN
6020  IF PEEK(POST) THEN 6010
6030  TEST=1
6040  POKE POST,Z
6050  RETURN
```

End of game

```
10000 GRAPHICS 2+16
10010 ? #6;"SCORE▲:";SCORE
10020 ? #6
10030 ? #6
10040 ? #6;"PRESS▲<RETURN>"
10050 POKE 754,255
10060 IF PEEK(754)<>12 THEN 10060
10070 CLR :GOTO 10
```

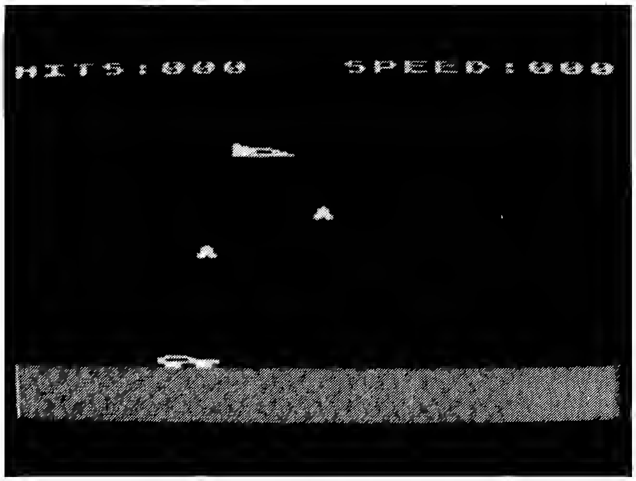
Initialize

```
20000 BODY=84
20010 DIM FRONT(3)
20020 FRONT(0)=92:FRONT(1)=93:FRONT(2)=94:FRONT(3)=95
20040 DIM AMX(3),AMY(3)
20050 AMX(0)=0:AMY(0)=-1
20060 AMX(1)=0:AMY(1)=1
20070 AMX(2)=-1:AMY(2)=0
20080 AMX(3)=1:AMY(3)=0
20090 TYPE=0
20100 SCORE=0
20110 TEST=0
20120 SCREEN=40000
20130 DIM X(970),Y(970)
20140 X(0)=19:Y(0)=12
20150 HEAD=0:TAIL=0:DROP=0:REPEAT=0:TYPE=0
20160 ? CHR$(125)
20170 GOTO 100
```

ChexSum Tables

```
   10 = 549
  100 = 1972
  110 = 1406
  120 = 1056
  130 = 2845
  140 = 1744
  150 = 916
  160 = 1249
  170 = 1292
  180 = 1763
  181 = 596
  190 = 1616
  200 = 447
  210 = 1174
  220 = 112
 5000 = 471
 5010 = 502
 5020 = 3174
 5030 = 502
 5040 = 569
 5050 = 567
 5060 = 568
 5200 = 282

 5210 = 976
 5220 = 835
 5230 = 1324
 5240 = 1397
 5250 = 1355
 5260 = 1341
 5270 = 347
 5280 = 514
 5290 = 704
 5300 = 1329
 5310 = 989
 5320 = 56
 6000 = 1837
 6010 = 985
 6020 = 580
 6030 = 346
 6040 = 381
 6050 = 58
10000 = 282
10010 = 853
10020 = 174
10030 = 174
10040 = 1255

10050 = 407
10060 = 701
10070 = 180
20000 = 474
20010 = 374
20020 = 2832
20040 = 742
20050 = 979
20060 = 1054
20070 = 1111
20080 = 1058
20090 = 286
20100 = 280
20110 = 281
20120 = 345
20130 = 938
20140 = 988
20150 = 1590
20160 = 343
20170 = 112

TOTAL = 58541
```

PATROL CAR



CLASSIFICATION: Arcade

Move your little patrol car along the ground and shoot down the hostile invaders and their missiles. Use the joystick to move left and right and the fire button to launch missiles. The aliens can drop nasties on you so beware!!!!

PROGRAMMING SUGGESTIONS

Add obstacles to your patrol cars path to make hitting the alien more difficult. Make it possible for several invaders to attack you at the same time.

Program Variables

X1	X position of patrol car
Y1	Y position of patrol car
A	Joystick variable
X3	X position of alien
Y3	Y position of alien
X2	X position of his missile
Y2	Y position of his missile
X4	X position of your missile
Y4	Y position of your missile

Program Structure

5	-	85	Set up players and draw screen
1ØØ	-	13Ø	Data for shapes
1Ø6Ø	-	156Ø	Main loop
2ØØØ	-	221Ø	Move the patrol car
3ØØØ	-	3Ø1Ø	Move the alien
4ØØØ	-	4499	Move his missile
5ØØØ	-	5999	Move your missile
7ØØØ	-	7999	Collision checking

Listing

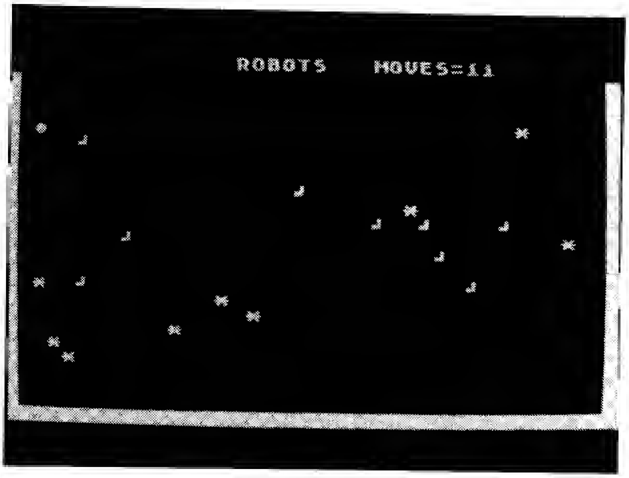
```
5       FOR I=33792 TO 33792+1023:POKE I,0:NEXT I
6       FOR I=30720 TO 30796:READ A:POKE I,A:NEXT I
7       FOR I=28672 TO 29050:READ A:POKE I,A:NEXT I
10      POKE 106,128
20      PM=PEEK(106):PMBASE=PM*256
30      GRAPHICS 1
40      POKE 559,62
50      POKE 53277,3
60      POKE 54279,PM
70      POKE 53256,2
80      POKE 704,77:POKE 705,77:POKE 706,77
85      POKE 707,77
100     DATA 0,0,112,136,135,255,102,102,0,0,0,0,0,0,0,0,0,0,0,
        0
110     DATA 16,56,56,56,124,108,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
        0,0
120     DATA 128,192,248,228,226,255,255,124,0,0,0,0,0,0,0,0,0
130     DATA 16,56,56,56,124,108,0,0,0,0,0,0,0,0,0,0,0
200     POKE 53256,1
210     POKE 53257,2
220     POKE 53258,1
230     POKE 53259,2
500     X3=0:GOSUB 4500:Y3=Y
505     X1=50:Y1=153
1030    A=USR(28672,X1,Y1,X2,Y2,X3,Y3,X4,Y4)
1060    POSITION 0,0:PRINT #6;"HITS:";HI;"␣BANGS:";BA;"␣␣";
1500    GOSUB 2000:REM PATROL CAR
1510    GOSUB 3000:REM ALIEN
1520    GOSUB 4000:REM HIS MISSILE
1530    GOSUB 5000:REM YOUR MISSILE
1545    A=USR(112*256,X1,Y1,X2,Y2,X3,Y3,X4,Y4)
1550    GOSUB 7000:REM CHECK
1560    GOTO 1060
2000    REM
2010    POKE 53278,0:A=STICK(1):IF A=15 THEN RETURN
2020    IF A=11 THEN GOSUB 2100
2030    IF A=7 THEN GOSUB 2200
2040    IF STRIG(1)=0 THEN 5500:RETURN
2050    RETURN
2100    REM
2105    IF X1<3 THEN RETURN
2110    X1=X1-4:RETURN
2200    REM
2205    IF X1>140 THEN RETURN
2210    X1=X1+4:RETURN
3000    REM
3005    IF X3>163 THEN GOSUB 4500:Y3=Y:X3=0:RETURN
3010    X3=X3+5:RETURN
4000    REM
4005    IF IT1=0 THEN GOSUB 4100
4010    IF Y2>155 THEN IT1=0:HI=HI+1:Y2=220:RETURN
4020    Y2=Y2+4
4025    IF X2>140 THEN RETURN
4030    X2=X2+4:RETURN
4100    X2=X3:Y2=Y3+8:IT1=1:RETURN
```

```
4499  RETURN
4500  Y=INT(RND(1)*120):IF Y<8 THEN 4500
4505  RETURN
5000  REM
5003  IF IT2=0 THEN RETURN
5005  IF Y4<8 THEN IT2=0:Y4=220:RETURN
5010  Y4=Y4-4:RETURN
5500  IF IT2=1 THEN RETURN
5505  X4=X1:Y4=Y1-8:IT2=1:RETURN
5999  RETURN
7000  REM
7010  IF PEEK(53261)=1 THEN BA=BA-1:IT1=0:Y2=220
7020  IF PEEK(53263)=2 THEN BA=BA+1
7030  IF PEEK(53263)=4 THEN BA=BA+1
7999  RETURN
9000  DATA 104.104,104,141.61.113,104,104,141.60,113.104,104,
      141,75,113,104.104.141,74
9005  DATA 113.104,104,141,89,113,104,104,141,88,113,104,104,
      141,103,113,104,104.141,102
9010  DATA 113,32,45,112,96,120,32.8,113,160,14,162,0,189,53,
      113,149,176,232,136
9015  DATA 208.247,32,170,112,160,14,162,0,181,176,157,53,113
      ,232,136,208,247,160,14
9020  DATA 162.0,189,67,113,149.176.232,136,208,247,32,170,11
      2,160,14,162.0,181.176
9025  DATA 157.67,113,232,136,208.247.160,14,162,0.189,81.113
      ,149,176.232,136.208.247
9030  DATA 32,170.112,160,14,162,0,181,176,157,81,113,232,136
      ,208,247,160,14,162.0
9035  DATA 189,95,113,149,176.232,136.208,247,32,170,112,160,
      14,162,0,181.176,157,95
9040  DATA 113.232.136,208.247,32.22.113.88.96,165,183,197.18
      2,240.68,160,0.165.184
9045  DATA 24,105,46,145,176,169,32.24,101.182,168,166,185.16
      9,0,145,178,200,202.16
9050  DATA 250.169,32,24,101,183.141.116,113,162,0,142,109,11
      3,166,185,172,109,113,177
9055  DATA 180,238,109,113.172,116,113,145,178,238,116,113,20
      2,16,237,165,183,133,182,165
9060  DATA 184,133,189,96,165,184,197,189,208,182,96,173,112,
      113,41.15,170,189,36,113
9065  DATA 238.112,113,96,160,14,162,0,181,176,157,117,113,23
      2,136,208,247.96,160,14
9070  DATA 162,0.189,117,113,149,176,232,136,208,247,96,1,2,3
      ,4,5,10,7.8
9075  DATA 7,8,11,4,2,4,1,4,8,0,208,0,132,0,120,0,0,0,8,0
9080  DATA 16,0,0,1,208,0,133,20,120,0,0,0,8,0,16,0,0,2,208,0


9085  DATA 134,40,120,0,0,0,8,0,16,0,0,3,208,0,135,60,120,0,0
      .0
9090  DATA 8.0.0.0.0,0.0,79,0.0,0,0,0,0.0,0,141,30,208
```

ChexSum Tables

```
   5 = 1421          1530 = 1275          5500 = 367
   6 = 1353          1545 = 2286          5505 = 1408
   7 = 1627          1550 = 749           5999 = 58
  10 = 277           1560 = 223           7010 = 1869
  20 = 1124          2010 = 1338          7020 = 1113
  30 = 144           2020 = 463           7030 = 1115
  40 = 420           2030 = 454           7999 = 58
  50 = 406           2040 = 624           9000 = 3800
  60 = 473           2050 = 58            9005 = 3900
  70 = 372           2105 = 358           9010 = 3548
  80 = 1169          2110 = 587           9015 = 3747
  85 = 361           2205 = 422           9020 = 3711
 100 = 2569          2210 = 586           9025 = 3824
 110 = 2668          3005 = 1412          9030 = 3638
 120 = 2534          3010 = 581           9035 = 3778
 130 = 2116          4005 = 428           9040 = 3730
 200 = 371           4010 = 1768          9045 = 3719
 210 = 373           4020 = 516           9050 = 3645
 220 = 373           4025 = 424           9055 = 4013
 230 = 375           4030 = 590           9060 = 3852
 500 = 889           4100 = 1396          9065 = 3760
 505 = 859           4499 = 58            9070 = 3163
1030 = 2315          4500 = 1341          9075 = 2355
1060 = 1692          4505 = 58            9080 = 2537
1500 = 1036          5003 = 302           9085 = 2637
1510 = 696           5005 = 1107          9090 = 2191
1520 = 1151          5010 = 597

                                         TOTAL = 120901
```

ROBOTS



CLASSIFICATION: Skill

The objective of this game is to move your player round the screen without being destroyed by the robots. Each time you move, all the robots move toward you. You can destroy the robots by causing them to walk over mines which you must avoid yourself. Select a joystick at the start of the game. Try to destroy all the robots in the least number of moves.

PROGRAMMING SUGGESTIONS

Increase the number of robots and mines on the screen. Place obstacles on the screen to make moving more difficult.

Program Variables

MO	Number of moves
SP	Space character
NR	Number of robots
PL	Players character
NM	Number of mines
JO	Joystick port number
SC	Start of screen

Program Structure

12Ø - 18Ø	Main Loop
1ØØØ - 1Ø99	Initialization
2ØØØ - 2Ø99	Setup game,input joystick number
3ØØØ - 3Ø3Ø	Deposit mines
4ØØØ - 4Ø4Ø	Deposit robots
5ØØØ - 5Ø3Ø	Move player
6ØØØ - 6Ø2Ø	Move player right
61ØØ - 612Ø	Move player left

Listing

```
10      REM ROBOTS
20      CLR
21      POKE 752,255
40      SC=40000
60      GOSUB 1000:REM INITIALIZE VARAIABLE
70      GOSUB 2000:REM DO INSTRUCTIONS
80      GOSUB 3000:REM DEPOIST MINES
90      GOSUB 4000:REM DEPOSIT DROIDS
100     GOSUB 5000:REM DEPOSIT PLAYER
```

Main Loop

```
120     A=STICK(JO):B=STRIG(JO):IF A=15 AND B=1 THEN 120
130     IF A=7 THEN GOSUB 6000
140     IF A=11 THEN GOSUB 6100
150     IF A=13 THEN GOSUB 6200
160     IF A=14 THEN GOSUB 6300
165     POSITION 0,0:PRINT SPC$(1,30);MO;
170     IF B=0 THEN POKE PO,SP:GOSUB 5000
180     GOSUB 8000:GOTO 120
```

Initialization

```
1000    SETCOLOR 4,7,5:SETCOLOR 2,3,6:SETCOLOR 1,3,15
1010    DIM TAB(10,2),E(10),SPC$(40)
1020    NM=10:REM SET NUMBER OF MINES
1025    PL=84:REM SET PLAYER CHAR
1030    ROB=67
1035    MIN=10:REM SET MINE CHAR
1040    NR=10:REM SET NUMBER OF ROBOTS
1050    SP=0:REM SET SP CHARACTER
1060    EX=17
1070    FOR I=1 TO 40:SPC$(I,I)="→":NEXT I
1099    RETURN
```

```
2000  POKE 752,0
2026  POKE 752,0
2027  PRINT CHR$(125);"WHICH▲JOYSTICK▲PORT▲(0,1)";:INPUT JO
2028  IF JO<>0 AND JO<>1 THEN 2027
2029  PRINT CHR$(125);:POKE 752,128
2030  FOR I=SC+1 TO SC+39:POKE I+920,128:NEXT I
2040  FOR I=SC+40 TO SC+920 STEP 40:POKE I,128:POKE I+39,128:
      NEXT I
2050  POKE SC,128
2060  POKE SC+920,128:POKE SC+920+39,128
2070  POSITION 0,0:PRINT "▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲ROBOTS▲▲▲
      MOVES=0▲▲▲▲▲▲▲▲▲";
      2099  RETURN
```

Deposit mines

```
3000  FOR I=1 TO NM
3007  RW=INT(RND(0)*23):IF RW=0 THEN 3007
3010  CW=INT(RND(0)*39):IF CW=0 THEN 3010
3020  PE=SC+(RW*40)+CW
3025  IF PEEK(PE)=MIN THEN 3007
3030  POKE PE,MIN:NEXT I:RETURN
```

Deposit robots

```
4000  FOR I=1 TO NR
4007  E(I)=1
4010  RW=INT(RND(0)*23):IF RW=0 THEN 4010
4015  CW=INT(RND(0)*39):IF CW=0 THEN 4015
4020  PE=SC+(RW*40)+CW
4025  IF PEEK(PE)=MIN THEN 4010
4030  IF PEEK(PE)=ROB THEN 4010
4035  TAB(I,1)=RW:TAB(I,2)=CW
4040  POKE PE,ROB
4050  NEXT I
4060  RETURN
```

```
5000  R=INT(RND(0)*23):IF R=0 THEN 5000
5010  C=INT(RND(0)*39):IF C=0 THEN 5010
5015  PO=SC+(R*40)+C
5020  IF PEEK(PO)=MIN THEN 5000
5025  IF PEEK(PO)=ROB THEN 5000
5030  MO=MO+5:POKE PO,PL:RETURN
6000  REM MOVE PLAYER RIGHT
6005  IF C=38 THEN RETURN
6006  MO=MO+1
6007  C=C+1:PE=SC+(R*40)+C
6010  IF PEEK(PE)=ROB THEN GOSUB 9000:GOTO 10
6012  IF PEEK(PE)=MIN THEN GOSUB 9500:GOTO 10
6020  POKE PO,SP:POKE PE,PL:PO=PE:RETURN
6100  REM MOVE PLAYER LEFT
6105  IF C=1 THEN RETURN
6106  MO=MO+1
6107  C=C-1:PE=SC+(R*40)+C
6110  IF PEEK(PE)=ROB THEN GOSUB 9000:GOTO 10
6112  IF PEEK(PE)=MIN THEN GOSUB 9500:GOTO 10
6120  POKE PO,SP:POKE PE,PL:PO=PE:RETURN
6200  REM MOVE PLAYER DOWN
6205  IF R=22 THEN RETURN
6206  MO=MO+1
6207  R=R+1:PE=SC+(R*40)+C
6210  IF PEEK(PE)=ROB THEN GOSUB 9000:GOTO 10
6212  IF PEEK(PE)=MIN THEN GOSUB 9500:GOTO 10
6220  POKE PO,SP:POKE PE,PL:PO=PE:RETURN
6300  REM MOVE PLAYER UP
6305  IF R=1 THEN RETURN
6306  MO=MO+1
6307  R=R-1:PE=SC+(R*40)+C
6310  IF PEEK(PE)=ROB THEN GOSUB 9000:GOTO 10
6312  IF PEEK(PE)=MIN THEN GOSUB 9500:GOTO 10
6320  POKE PO,SP:POKE PE,PL:PO=PE:RETURN
8000  REM MOVE ROBOTS
8020  CC=0:FOR I=1 TO NR
8030  IF E(I)=1 THEN GOSUB 8500:CC=CC+1
8040  NEXT I
8050  IF CC=0 THEN GOSUB 9900:GOTO 10
8060  RETURN
8500  REM MOVE ONE ROBOT
8505  RW=TAB(I,1):CW=TAB(I,2):PE=SC+(RW*40)+CW
8520  IF CW<C THEN TC=CW:TC=TC+1
8525  IF CW>C THEN TC=CW:TC=TC-1
8530  IF RW<R THEN TR=RW:TR=TR+1
8535  IF RW>R THEN TR=RW:TR=TR-1
8540  PN=SC+(TR*40)+TC
8545  IF PEEK(PN)=MIN THEN POKE PN,SP:POKE PE,SP:E(I)=0:RETUR
      N
8550  IF PEEK(PN)=ROB THEN RETURN
8560  IF PEEK(PN)=PL THEN GOSUB 9000:GOTO 10
8570  TAB(I,1)=TR:TAB(I,2)=TC:POKE PE,SP:POKE PN,ROB:RETURN
9000  REM THE ROBOTS GOT YOU
9005  PRINT CHR$(125);:PRINT "YOU▴WERE▴CAPTURED▴BY▴THE
      ▴ROBOTS !!!!!"
9010  PRINT :PRINT "YOU▴MADE▴";MO;"▴MOVES"
9012  CC=0:FOR I=1 TO NR:IF E(I)=0 THEN CC=CC+1
9013  NEXT I
9015  PRINT :PRINT "AND▴DESTROYED▴";CC;"▴ROBOTS"
```

```
9020  GOSUB 10000:RETURN
9500  REM PLAYER HIT A MINE
9505  PRINT CHR$(125);"YOU▲HIT▲A▲SUBATOMIC▲MINE"
9510  PRINT :PRINT "YOUR▲MOLOCULES▲ARE▲NOW▲ORBITING▲THE"
9512  CC=0:FOR I=1 TO NR:IF E(I)=0 THEN CC=CC+1
9513  NEXT I
9515  PRINT :PRINT "EARTH!!!!!":PRINT
9520  PRINT "YOU▲MADE▲";MO;"▲MOVES":PRINT
9525  PRINT "AND▲DESTROYED▲";CC;"▲ROBOTS":GOSUB 10000:RETURN
9900  REM ALL ROBOTS GONE
9905  PRINT CHR$(125);"YOU▲HAVE▲DESTROYED▲ALL▲THE▲ROBOTS":
      PRINT
9910  PRINT "IT▲TOOK▲YOU▲";MO;"▲MOVES":PRINT
9915  GOSUB 10000:GOTO 10
10000 PRINT :PRINT "PRESS▲JOYSTICK▲TRIGGER▲TO▲RESTART▲GAME"
10005 B=STRIG(JO):IF B=1 THEN 10005
10010 RETURN
```

ChexSum Tables

```
   20 = 40
   21 = 405
   40 = 333
   60 = 1751
   70 = 1457
   80 = 1291
   90 = 1381
  100 = 1405
  120 = 1916
  130 = 516
  140 = 527
  150 = 530
  160 = 532
  165 = 881
  170 = 796
  180 = 406
 1000 = 1204
 1010 = 1258
 1020 = 1861
 1025 = 1703
 1030 = 442
 1035 = 1423
 1040 = 1959
 1050 = 1573
 1060 = 365
 1070 = 1460
 1099 = 58
 2000 = 253
 2026 = 253
 2027 = 2256
 2028 = 661
 2029 = 748
 2030 = 1549
 2040 = 2200
 2050 = 319
 2060 = 1173
 2070 = 2114
 2099 = 58
 3000 = 461
 3007 = 1215
 3010 = 1248
```

```
 3020 = 1026
 3025 = 684
 3030 = 617
 4000 = 465
 4007 = 581
 4010 = 1240
 4015 = 1269
 4020 = 1026
 4025 = 709
 4030 = 708
 4035 = 1607
 4040 = 358
 4050 = 175
 4060 = 58
 5000 = 1246
 5010 = 1286
 5015 = 1019
 5020 = 696
 5025 = 695
 5030 = 954
 6005 = 427
 6006 = 503
 6007 = 1602
 6010 = 962
 6012 = 968
 6020 = 1211
 6105 = 372
 6106 = 503
 6107 = 1603
 6110 = 962
 6112 = 968
 6120 = 1211
 6205 = 404
 6206 = 503
 6207 = 1600
 6210 = 962
 6212 = 968
 6220 = 1211
 6305 = 371
 6306 = 503
 6307 = 1601
```

```
 6310 = 962
 6312 = 968
 6320 = 1211
 8020 = 777
 8030 = 1379
 8040 = 175
 8050 = 682
 8060 = 58
 8505 = 2688
 8520 = 1360
 8525 = 1362
 8530 = 1360
 8535 = 1362
 8540 = 1044
 8545 = 1937
 8550 = 606
 8560 = 967
 8570 = 2532
 9005 = 2855
 9010 = 1379
 9012 = 1877
 9013 = 175
 9015 = 1857
 9020 = 187
 9505 = 2046
 9510 = 2679
 9512 = 1877
 9513 = 175
 9515 = 765
 9520 = 1379
 9525 = 2028
 9905 = 2822
 9910 = 1612
 9915 = 262
10000 = 2915
10005 = 984
10010 = 58


TOTAL = 127177
```

Turn your Atari into an exciting arcade of electronic fun and thrills with the easy-to-enter ready-made programs in this book. Containing 30 different games designed to demonstrate the complete capabilities of the Atari 130XE — arcade games, strategy games *and* adventures are all here for you to enjoy — without the need for any complex programming skills!

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